

SAMSprite

Design sprites and animation for your games and utilities. Results can be easily used from BASIC, SAM C, Machine Code or GamesMaster.

Carol Brooksbank, June 1996 **FORMAT** :-

"I found this a very easy program to use, and certainly, mask creation was the easiest I have ever come across... The handbook is clear and easy to follow, and the program options are straightforward to use. It is a first class introduction to the world of sprites"

256 frames in each file

Fast, full-screen animation

Rotate and Scroll

Optional Mouse Support

Permits mask design

Fill, Invert, Mirror and Flip

Fade and Bright facilities



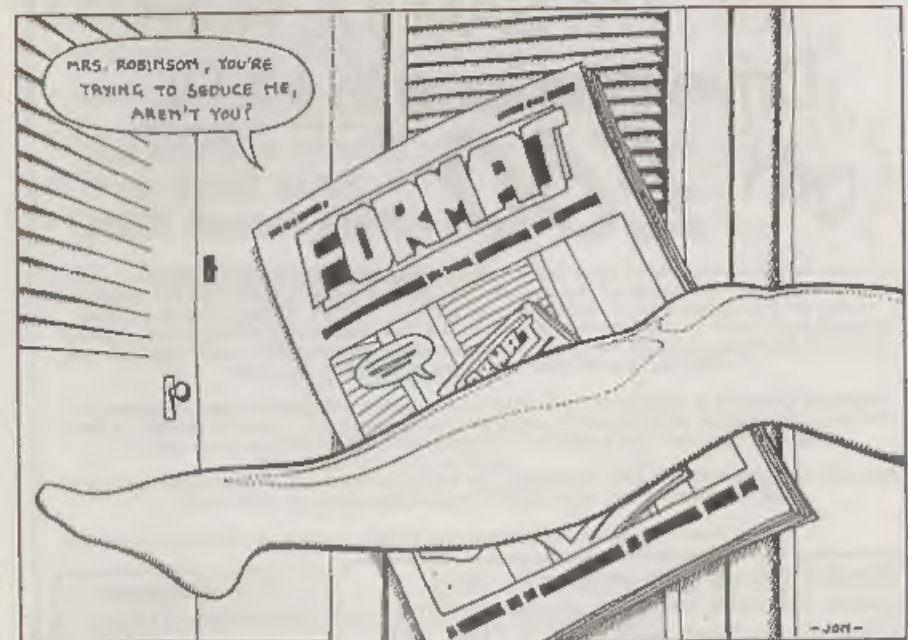
Only £9.99 from **FRED Publishing**,
40 Roundyhill, Monifieth, Dundee,
DD5 4RZ Tel: 01382 535963

Vol.9 Nº12.

August 1996.

FORMAT

THE HOME OF Z80 COMPUTING



You Never Know What Will Happen
When You Read **FORMAT**

£1.75 (UK R.R.P.)

ISSN 0963-8598.

MAKE LIFE HARD FOR YOUR SAM

What *Every* Sam Owner Has Been
Waiting For. Megabytes or even
Gigabytes of on-line disc storage.

Yes, The SAM IDE Hard
Drive Interface **IS HERE**

Only £60

Works with either
SAM Elite or
SAM Coupé 512K

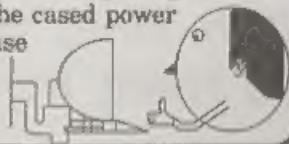
Comes complete with Hard Disc Operating System on 3 1/2 inch floppy together with utility software. All you need is a standard PC IDE drive (any size from the smallest to the very largest) with a suitable power supply. We can supply a 70cm cable to connect your drive to the interface if you do not have one. *Only £9.95* when ordered with the interface. All S D Software customers will receive *FREE* software updates until the end of 1996 - so there is no reason to delay.

Powered Cases** A neat metal box with mains power supply designed to house two 5 1/4 inch disk drives, suitable for housing your IDE disc drive. There is no fan on this unit so it is silent. *Only £25.00* including carriage to any part of the UK.

Buy the lot and *SAVE £3.05*. Normally the whole package would be £95.05 but I will let you have it for *only £92.00* including carriage. (UK only)

**s.b. These power supplies are 220/240V 50Hz UK Standard s.b. @ 3A, +12V @ 3A (Total 3A max).

Terms: Payment with order only. Send cheque or postal order, in pounds sterling. Then add post and packing: UK £1.00, EEC £1.50, rest of the world £2.00. (postage is included if ordering the cased power supply, UK only). Please allow 28 days for delivery.



S. D. Software,
70, Rainhall Road,
Barnoldswick,
Lancashire, England,
BB8 6AB.

Other software still available.
Send A5 size stamped self
addressed envelope for list.

CONTENTS

Vol.9 N°12.

August 1996.

• News On 4	4
• The Editor Speaks	5
• Short Spot	7
• Do You Want My AutoGRAPH?	11
• BOXing Easy	16
• Talking C	17
• A Genius At Work - A Second Look	23
• The Help Page	25
• Writing For <i>FORMAT</i>	28
• More New Tricks For The Secretary - Part 2 ...	29
• Your Letters	33
• Small Ads	38
• Format Readers Service Page	39

THIS MONTHS ADVERTISERS:-

FLEXIBASE SOFTWARE	15
FORMAT (SAM REPAIR SERVICE)	22
FRED PUBLISHING	Back Cover
REVELATION SOFTWARE	6
S.D.SOFTWARE	2
STEVE'S SOFTWARE	24
WEST COAST COMPUTERS	32

FORMAT ISSN 0963-8598

© Copyright 1996 FORMAT PUBLICATIONS. All Rights Reserved.

No part of this publication may be reproduced, in any form, without the written consent of the publisher. The purchaser of this magazine may copy program material published herein for his or her own personal use and provided that any such programs are erased if and when the purchaser disposes of this magazine in any way. While every effort is made to ensure accuracy in *FORMAT* the publisher will not be held liable for any errors or omissions.

FORMAT is published by **FORMAT PUBLICATIONS.**

34, Bourton Road, Gloucester, GL4 0LE, England.

Telephone (Voice and Fax) 01452-412572.

Printed by D.S.Litho. Gloucester. Telephone 01452-523198.

NEWS ON 4

FUTURE'S CUTBACKS

Future Publishing, the Bath based company who used to publish *Your Sinclair*, is cutting back even further as the sales of its computer titles continue to drop.

PC Format, their flagship title, has seen its audited sales figures drop by over 25% in the first six months of this year. Other PC titles, all of which have the same flashy look clearly aimed at the teenage/youth market, have fallen even further behind with *PC Guide* dropping by some 46% to only 17,000 copies per issue.

Console mags have fared little better with only the latest PlayStation title seeing a rise in sales. *ST Format*, the last of the high Street mags devoted to the Atari ST, closes with the September issue which is now on sale. At £4.50 a copy, its sales had dropped to less than 12,000 in the last year and at that sort of price only the very dedicated could justify the purchase.

Future, who started with computer titles and whose mainstay has always been computer titles, believe that new magazines planned for later this year will help them keep ahead of the competition.

WHAT A DIFFERENCE A YEAR MAKES

From the dizzy heights of the Commodore buy-out to financial collapse in one short year. That is the story of the German computer manufacturer/retailer ESCOM whose 1995 losses are now estimated at £75 million.

At the start of July, Escom filed in the German courts for protection from its creditors. The UK company, autonomous from its German parent, vowed to continue but was forced to close 65 of its British shops (many only acquired a year ago from the old Rumbelows chain) to try

and keep its head above water. This still left 170 outlets, many of them being concessions within larger stores like Office World and Debenhams.

However, as July's temperatures rose ever higher, Escom in Germany sank deeper and eventually shut down altogether. Despite a last ditch bid to find a buyer for the UK company there was nobody interested and so it looks like all the remaining shops will close as the receivers sell off the assets to raise money for the creditors. Look out for some good bargains if your local Escom has not closed its doors already.

REVELATION SURVEY

Exeter based Revelation software has been surveying its user base recently with questionnaires (loosely disguised as order forms) going out to all the customers on its database and via FRED.

Early results show that there is still a fantastic demand for new SAM titles with a preference being expressed for thought provoking games rather than the mindless zap-um style.

Revelation have promised to publish the full results of the survey in time for the Gloucester show in October so we will bring you more details when we have them.

YOUR NEWS HERE...

Obviously this is a bad time of the year for computer news. But this space could well have been filled with your news, if only you had sent it to us. There must be local computer clubs out there that want publicity, or perhaps you have heard of a new printer that has just hit the market.

Remember, you get three months extra subscription for every news item we print, so don't rely on others to send in an item you have seen - send it off yourself and earn our thanks as well.

The Editor Speaks

Back to normal this month, well nearly anyway. Jenny has been off with a flu bug that has left her rather down at the moment and I'm doing my best to avoid it. The bug was caught at her 3rd birthday party of all places - and no, I'm too much of a gentleman to reveal her age but the clue is "Looks 20, Feels 16 and Acts 4."

Anyway, first thing this month is a reminder for everyone to pass on the PC leaflet we sent out last month. The more PC members we get the more resources we will have to spend on the Spectrum and SAM software we have planned. If you want any more leaflets, and some of you must know dozens of PC users, just give Jen a tinkle with your membership number and she will get some off to you right away.

As soon as we get the first issue of *FORMAT* PC out we will let *FORMAT* readers know how to order copies in addition to their existing mag. I need to do a little re-write on the database program before we can handle it but that should not take me too long once I get this month's issue off to the printers.

Now a word for our Northern readers. Allan Clarkson of Crashed! is organising a SAM and Spectrum show on Saturday the 21st September in Wetherby (between Leeds and York) and, provided my car is back on the road by then, *FORMAT* will be there. Now the question is WILL YOU BE THERE? I'm asking this question now because I think a few people need to think before they answer. There have, in the past, been many letters (some of which we have printed in *FORMAT*) bemoaning the fact that shows were organized in Gloucester

and claiming that that was too far away for some people to travel. I never believed this to be true, but just to show willing I did agree to attend the two 'shows within a show' that Colin at Fred Publishing arranged in Edinburgh. SAM/Spectrum users were thin on the ground at the Autumn one last year. At the one held this June attendance was so bad that we all took the customer out for a drink before getting him back to Edinburgh station so he could catch his train home to Newcastle. Yes readers, that was how bad we were let down, you asked for a show and many people went to a lot of trouble to provide one - but nobody turned out in support. So, let's look upon the Yorkshire show as being a last chance, if attendance is low and the exhibitors don't take enough money then the simple outcome is that there won't be another. A map of how to get to the show will be printed in next month's issue, if you need more details in the meantime you can contact Allan on 0113 237 4800.

While we are on the subject of shows, remember that the next Gloucester show is on the 26th October.

Next month will see the start of volume ten of *FORMAT*, a milestone which we will celebrate with a special directory of Spectrum and SAM support companies. We've sent out over 100 forms and so far nearly half have come back. We want the directory to be as complete as possible so, if you produce software (or if you provide any other service) for the Spectrum and SAM, and you haven't had a form from us then ring us right away so we can include you.

Until next month.

Bob Brenchley, Editor.

SAM GAMES AVAILABLE FROM REVELATION

SOPHISTRY

Our latest & BEST licenced game. Originally produced for the Spectrum by CRL, and now brilliantly converted for SAM, Sophistry is a game that is big, perplexing, colourful, frustrating, musical, bouncy, and above all DIFFERENT (and it even has the Spectrum version built in so you can take a trip down memory lane).

£9-95 (£8-95 to INDUG members)

TNT

Written by industry mega-star Matt Round - A game packed with humour, colour, sound and above all ACTION!

Loosely based on *Bamb Jack* (the game SAM owners have most requested over the years). As well as the normal one player game, TNT has gone one better by giving you TWO player action - competing against each other, in full glorious technicolour - at the same time. It even has a novel feature in a SAM game - a High Score Table, how many others have that?

Avoid the manias, collect the bonus points, Jump, Hover, Fly - what more do you want???

£9-95 (£8-95 to INDUG members)

GRUBBING FOR GOLD

We spent a lot of time listening to what our customers wanted. And here is the result. You wanted a family game - you got it, you asked for colour and sound - you got it, you demanded long term interest - you got it.

GRUBBING FOR GOLD - the most advanced, the most playable, the most enjoyable quiz game since the legendary Quiz Ball. They said it could not be done - they said bringing a TV quiz show to SAM would not work. Well let them eat their hearts out because YOU GOT IT...

This game has everything. Animated and entertaining. Hundreds of questions, on a wide variety of subjects at levels to suit most people. It even has a question editor program on the disc so you can create your own sets of questions or alter those already on the disc. GRUBBING FOR GOLD will really keep the family playing during the long winters nights. This is the game you can never grow out of.

£9-95 (£8-95 to INDUG members)

More Games Coming Soon

Send SAE for full list of available games.

REVELATION FOR THE VERY BEST IN SERIOUS SOFTWARE

~THE SECRETARY - The most advanced word-processor for SAM, powerful, versatile and easy to use. NEW Version 1.5 Available Now - The BEST just got better £14.95 (INDUG £12.95)

~COMET Z80 ASSEMBLER - The SAM assembler many professionals use, yet easy enough for the beginner - so why settle for second best? £29.95 (INDUG members £21.95)

DRIVER

The Graphical User Interface for SAM

DRIVER works with the SAM Mouse (no mouse should be without one) or Keyboard. It provides a full WIMP (Windows, Icons, Menus, Pointers) system that puts you in full control of your SAM.

Comes complete with many built-in utilities and ready to run applications. Full manual and a disc-based tutorial. DRIVER gives you the ease of use only found on big office computers before. So easy to use yet so powerful. *Fantastic Value £29.95* (INDUG members £24.95)

Now Includes FREE Copy OF DRIVER's Extras Disc 1

DRIVER's Extras Disc still available for existing users at £5.95 (INDUG members £4.95)

SCADs PD Yes, at last, we are please to re-release SCADs - the arcade game development system for SAM. Previously sold by Glenco at £24.95 we have now placed the software into the Public Domain so the disc costs you *Only £2.50*. The full manual (over 200 pages) is also available for £12.95 (overseas please add an extra £1 to postage rates below)

* All prices include UK postage and packing (Europe please add £1, other overseas please add £2).
* Payment by UK cheque (made payable to Revelation Software), PO or cash. Sorry but we can't accept orders by Euro-cheque or Giro.
* Please Quote INDUG membership number clearly on order if claiming discount.

* Send orders to:

**Revelation
Software**

Revelation Software, 45, Buddle Lane, Exeter, EX4 1JS.

SHORT SPOT

YOUR HINTS, TIPS AND PROGRAMMING IDEAS

Edited By:- John Wase.

.10115

40 CIRCLE 127-r1*SIN a,r1*COS
a+87,r1*SIN a
50 CIRCLE 127+r1*SIN a,r1*COS
a+87,r1*SIN a
60 NEXT a
70 PRINT AT 10,8;"Nephroid Env
elope"

Finally from Roy, here's a program that's a bit of fun for those who have the PLAY command. Details are REMmed in the program, as these things are often a bit of a pain to work out!

1 REM Sinclair. Introducing t
he Spectrum 128. Sinclair R
esearch Ltd. 1986. p9. Musi
c and Sound. Music-turns ou
t to be Frere Jacques.
2 REM Revised to ZX Spectrum+
128K by B.C.R.Burford 2001
95. Adjusted notes and put
in rests.
3 REM Key F. First tune twice
. Then as round twice.
5 PRINT AT 12,10;"Frere Jaque
s"
10 LET a\$="T18005(5fgaf)(5a\$b7
C)(3CDC\$b5af)5fcf&fcf&"
20 LET b\$="O4(5fgaf)(5a\$b7C)(3
CDC\$b5af)5fcf&fcf&"
30 LET c\$="O3(7fc)(7fc)(7fc)5a
ea&aea"
40 BRIGHT a\$,b\$,c\$
45 PAUSE 25
50 BRIGHT a\$,b\$,c\$
55 PRINT AT 14,10;"now as Roun
d"
60 LET a\$="T18005(5fgaf)(5a\$b7
C)(3CDC\$b5af)5fcf&fcf&(5fga
f)(5a\$b7C)(3CDC\$b5af)5fcf&f
cf&(5fgaf)(5a\$b7C)(3CDC\$b5a
f)5fcf&fcf&"
70 LET b\$="O5(5&6&6&)(5fgaf)(5a
\$b7C)(3CDC\$b5af)5fcf&fcf&(5

Only a short Short Spot this month, Bob's deadlines creep up on me unawares and I could really do with lots more little short items to make up these pages. Still, there are some nice things this month so 'on with the show...'

First, over to Roy Burford of Norton, Stourbridge, from whom we hear most regularly. Indeed, on looking at my pile of stuff, I find I have no less than four letters from Roy, bless him: he's most prolific. What's more, some of his letters contain developments or repeats of what's gone before, making it easy for me to put my foot in it! At the risk of so doing, I'll make a start on them!

In the first, Roy mentions that he is grateful to Etrick Thomson for his advice on INT (*FORMAT* Vol.9 N°8 April 1996) and also for the information on Russian multiplication/division (Vol.9 N°9, May 1996). If anyone wants this converted to Spectrum, it's here; Roy's done it.

Now, do you remember Roy's Parabola Envelopes program in May? Here's the next example, nephroiden.

1 REM Inspiration-E.H.Lockwo
d. A Book of Curves. Cambri
dge University Press. 1963.
p63. The Nephroid. Circle
centres follow arc of radiu
s r1.
2 REM Perspiration-on paper a
nd ZX Spectrum+ 128K by B.C
.R.Burford 010395.
10 PRINT AT 10,8;"Nephroid Env
elope"
20 LET r1=62
30 FOR a=.10115 TO PI-.1 STEP

```

fgaf)(5a$b7C)(3CDC$b5af)5fc
f&fcf&(5fgaf)(5a$b7C)(3CDC$
b5af)5fcf&fcf&
80 LET c$="O5(5&$$$)(5&$$$)(5f
gaf)(5a$b7C)(3CDC$b5af)5fcf
&fcf&(5fgaf)(5a$b7C)(3CDC$b
5af)5fcf&fcf&(5fgaf)(5a$b7C
)(3CDC$b5af)5fcf&fcf&
90 BRIGHT a$,b$,c$
95 PAUSE 25
100 BRIGHT a$,b$,c$

```

Couple more points from Roy. He writes in confirmation of Etrick's point that BAND was unknown to the 1989 edition of the SAM handbook. It was, however, points out Roy, noted in the *Technical* manual version 2.3 November 1989, where n BOR m, n BAND m and n BXOR m are noted on p22, along with a very brief description and the note "Useful for lots of techie things", so specialist users with the time to try and work out what these things were about could take advantage of them.

A further point of interest concerns Etrick's Russian Multiplication. During conversion Roy had to emulate Etrick's $p \text{ MOD } 2$ by $p - (\text{INT}(p/2) * 2)$. The same emulation does not work on the Commodore 64 because Boolean True=-1 on this machine. To work correctly, the expression had to be modified to $-p + (\text{INT}(p/2) * 2)$. Finally, the C64 can't do Russian Multiplication with integers >255 compared with SAM/Spectrum's >65535

Many thanks, Roy.

Paul Whelley of Wigan sent, asking about the fixture program. In view of his letter, I was going to feature it until I looked more closely at it last night, and it appears that the program had been saved with certain variables in place, rather than defining them. As I was not sure, I rang the author and asked him to check, so sorry Paul: can't let you have a copy yet! We'll feature it as soon as we can, since there's clearly interest in it.

Next, we turn to the vexed question of reading selected lines of data, introduced by Peter Williamson last month. As I suspected, it stirred up a hornet's nest...

Geoff Eglinton of Solihull asks "Why not use restore?" He adds a little program to show us all, as does John McCabe of Fetcham, Surrey: John mentions ITEM, on p147 of the manual, and adds a PS. "No doubt you've been inundated with letters just like this." Yes, I have, John; serves me right! John Redfern of Forest Hill, London, extends this overlooking of the obvious by quoting the original Spectrum manual. "You can make the computer jump about in the DATA list using the RESTORE statement. This has RESTORE followed by a line number and makes subsequent READ statements start getting their data from the first DATA statement after the given line number". "This," says John, "is rather clearer than the explanation in the SAM manual, which nevertheless does have the essential points."

Here's Peter's listing, modified by John to use RESTORE.

```

10 REM ****DATAREAD****
20 REM Use of RESTORE in DATA
  READ situations
30 DATA 5,6,7,8
40 DATA "e","f","g","h"
50 DATA 1,2,3,4
60 DATA "a","b","c","d"
70
80 RESTORE 50
90 GOSUB 220
100
110 RESTORE 30
120 GOSUB 220
130
140 RESTORE 60
150 GOSUB 290
160
170 RESTORE 40
180 GOSUB 290
190 STOP
200
210 REM Subroutine for numeric

```

```

data
220 FOR x=1 TO 4
230 READ j
240 PRINT j;
250 NEXT x
260 PRINT
270 RETURN
280
290 REM Subroutine for
  alphabetic or mixed data
300 FOR x=1 TO 4
310 READ j$
320 PRINT j$;
330 NEXT x
340 PRINT
350 RETURN

```

Etrick Thomson of Aldeburgh has also waded in here, with a note again mentioning the use of RESTORE. He extends this, however, with the further point that with the Spectrum, program changes might lead to the chore of renumbering such RESTORES; SAM's RENUMBER will do it for you.

But the final letter on this subject has to come from Peter himself, who has, of course, also discovered RESTORE. However, he warns that RESTORE is not necessarily foolproof in all circumstances if one has a SAVE or LOAD M\$ DATA B\$() type of line floating around in your program. So be warned.

Here's a final snippet for today. It comes from Simon Turk of Tunbridge Wells, Kent. Simon mentions that he is a new, inexperienced and novice programmer, and it is to his credit that he has sent something along. His program solves wordsearches. Simon thinks that it must be possible to get the same results with a far shorter and neater program, and asks if I could throw down a challenge to our astute readers. Please, how can one get a program to work just like this in no space at all? Solutions, please, to me, marked "The Turk Problem!"

Here's Simon's program.

```

10 REM Wordsearch cracker
20 REM Written by SIMON TURK
30 REM *Input loop*
40 INPUT "How many columns?";
  c
50 INPUT "How many rows?";r
60 DIM w$(r,c)
70 FOR i=1 TO r
80 CLS
90 PRINT "Input row ";i
100 INPUT a$
110 IF LEN a$<>c THEN GOTO 100
120 LET w$(i)=a$
130 NEXT i
140 REM *Display loop*
150 CLS
160 FOR y=1 TO r
170 PRINT AT Y,1;w$(y)
180 NEXT y
190 REM *Input word to find*
200 INPUT "Word ";a$
210 REM *match first letter*
220 LET x=1: LET y=1
230 IF w$(y,x)=a$(1) THEN GOSUB
  1000
240 LET x=x+1: IF x>c THEN LET
  x=1: LET y=y+1
250 IF y>r THEN GOTO 270
260 GOTO 230
270 PRINT R$1;"No match found"
  : PAUSE 0: GOTO 190
1000 REM *search 8 directions f
  or word*
1010 REM *up*
1020 IF LEN a$>y THEN GOTO 1100
1030 FOR L=2 TO LEN a$
1040 IF NOT w$(y+1-L,x)=a$(L) T
  HEN GOTO 1100
1050 NEXT L
1060 FOR d=0 TO LEN a$-1
1070 PRINT INVERSE 1; AT y-d,x;
  a$(d+1)
1080 NEXT d: PAUSE 0: GOTO 140
1100 REM *up+right*
1110 IF LEN a$>y OR c+1-x<LEN a
  $ THEN GOTO 1200
1120 FOR L=2 TO LEN a$
1130 IF NOT w$(y+1-L,x-1+L)=a$(
  L) THEN GOTO 1200
1140 NEXT L
1150 FOR d=0 TO LEN a$-1
1160 PRINT INVERSE 1; AT y-d,x+
  d;a$(d+1)
1170 NEXT d: PAUSE 0: GOTO 140
1200 REM *right*

```

```

1210 IF c+1-x<LEN a$ THEN GOTO
1300
1220 FOR L=2 TO LEN a$
1230 IF NOT w$(y,x-1+L)=a$(L) T
HEN GOTO 1300
1240 NEXT L
1250 FOR d=0 TO LEN a$-1
1260 PRINT INVERSE 1; AT y,x+d;
a$(d+1)
1270 NEXT d: PAUSE 0: GOTO 140
1300 REM *right+down*
1310 IF c+1-x<LEN a$ OR r+1-y<L
EN a$ THEN GOTO 1400
1320 FOR L=2 TO LEN a$
1330 IF NOT w$(y-1+L,x-1+L)=a$
(L) THEN GOTO 1400
1340 NEXT L
1350 FOR d=0 TO LEN a$-1
1360 PRINT INVERSE 1; AT y+d,x+
d;a$(d+1)
1370 NEXT d: PAUSE 0: GOTO 140
1400 REM *down*
1410 IF r+1-y<LEN a$ THEN GOTO
1500
1420 FOR L=2 TO LEN a$
1430 IF NOT w$(y-1+L,x)=a$(L) T
HEN GOTO 1500
1440 NEXT L
1450 FOR d=0 TO LEN a$-1
1460 PRINT INVERSE 1; AT y+d,x;
a$(d+1)
1470 NEXT d: PAUSE 0: GOTO 140
1500 REM *down+left*
1510 IF x<LEN a$ OR r+1-y<LEN a
$ THEN GOTO 1600
1520 FOR L=2 TO LEN a$
1530 IF NOT w$(y-1+L,x+1-L)=a$(
L) THEN GOTO 1600
1540 NEXT L
1550 FOR d=0 TO LEN a$-1
1560 PRINT INVERSE 1; AT y+d,x-
d;a$(d+1)
1570 NEXT d: PAUSE 0: GOTO 140
1600 REM *left*
1610 IF LEN a$>x THEN GOTO 1700
1620 FOR L=2 TO LEN a$
1630 IF NOT w$(y,x+1-L)=a$(L) T
HEN GOTO 1700
1640 NEXT L
1650 FOR d=0 TO LEN a$-1
1660 PRINT INVERSE 1; AT y,x-d;
a$(d+1)
1670 NEXT d: PAUSE 0: GOTO 140
1700 REM *left+up*
1710 IF x<LEN a$ OR y<LEN a$ TH

```

```

EN RETURN
1720 FOR L=2 TO LEN a$
1730 IF NOT w$(y+1-L,x+1-L)=a$(
L) THEN RETURN
1740 NEXT L
1750 FOR d=0 TO LEN a$-1
1760 PRINT INVERSE 1; AT y-d,x-
d;a$(d+1)
1770 NEXT d: PAUSE 0: GOTO 140

```

A couple of points. First, I had a scream from the blue to return the disc. Simon had not taken a copy. Do remember that postage is going up: return postage is now much dearer than discs! Secondly, he had not labelled the disc with the name of the program and the name of the author. In the first place, anonymous discs which fall out of piles of things can never be restored to accompanying text. In the second, as I don't know the name of the program, I have had to type in a row of stars to Bob (Bob, whateveritis here please) as instructions to insert the program in the text here.

You're not the only one by a long way Simon, so don't be discouraged. And if our readers come up with neat solutions, you'll learn a lot. We hope to hear from you soon.

Please keep all your snippets coming to me; without them I can't put a column together. Please send them to:-

John Wase,
Green Leys Cottage,
Bishampton,
Pershore,
Worce,
WR10 2LX.

MUST YOU ALWAYS FACE UP
THE FRONT WHEN WE HAVE A ROW P



Would You Like My

AUTOGRAPH

By:- Carol Brooksbank.

I think I have mentioned that I run a small Library. Every couple of months I have to produce a bar chart to show the Committee how much use is being made of the Library, and up till now I have kept the figures in TASCALC 128, and produced the graphs with that. The drawback to that is that every other Library operation - recording loans, writing overdue letters, cataloguing books, printing stationery etc., - is done on the SAM. When old age finally catches up with me and I have to hand the library on to someone else, it would be much more sensible to be able to say that you can do everything on a Sam, than to say "but you need a Spectrum +2 for the graphs". And, anyway, to use a spreadsheet when all you want to do is produce graphs, is like hiring a furniture van to take a letter to the post.

Hence this little program. I needed to be able to enter figures, and to label each item, to produce a bar graph from all or some of the data, to save the graph as a screen, to save and re-load the data, to display and update the data, and to know what was the last item entered when I come to enter a new batch of figures. (I often leave entering the figures until I have a decent batch to type in, and can't always remember when I last did it!).

There are simple graph programs around, but I could not find one that would take enough figures. This program can take 500 items of data, plus a 6-character label for each, as it stands,

and it is easy to modify if you want more. The graph can be saved as a SCREEN\$ and loaded into SAMpaint, so that you can add text notes, colour the bars etc. The scale is printed at the left-side of the graph.

The thickness of the bars in the graph depends on the number of data items you want to display on it. 5 items will give you bars 30 pixels wide, 50 bars will each be 3 pixels wide, 70 2 pixels wide, and above 76 each bar is only 1 pixel wide. You can have up to 115 single pixel bars in one graph. More than that, and you will have to do more than one graph. Bear in mind that if you want the bars all the same size, you need roughly the same amount of data items in each graph. (If you wanted to produce 2 graphs for 144 items, and you did 114 items in the first graph and 30 in the second, the bars in the first graph would be 1 pixel wide and in the second 5 pixels wide. 72 items in each graph would give you matching graphs.)

The program needs MasterBASIC, so begin by formatting a disc and copying your MD+MBAS file to it. Now, type in the program. I have added some notes to explain what is going on.

```

10 REM BAR GRAPH PROGRAM BY C
AROL BROOKSBANK
20 DIM A$(500,6)
30 DIM A(500)
40 SCREEN 1: PEN 15: PAPER 0:
MODE 3: CLS : DEF KEYCODE
196,*GOTO 40*
50 CSIZE 16,16: PRINT AT 0,13

```

```

; "MENU"; : CSIZE 8,8
60 PRINT AT 5,5;"1) ADD DATA
"
70 PRINT AT 7,5;"2) SAVE PRO
GRAM WITH DATA"
80 PRINT AT 9,5;"3) MAKE GRA
PH"
90 PRINT AT 11,5;"4) DISPLAY
DATA"
100 PRINT AT 13,5;"5) SAVE DA
TA ONLY"
110 PRINT AT 15,5;"6) LOAD DA
TA"
120 PRINT AT 19,5;"ENTER OPTIO
N NUMBER"
130 GET OPT
140 IF OPT<1 OR OPT>6 THEN GOT
O 130
150 GOTO 1000*OPT

```

Lines 20 and 30 set up the data arrays for the labels and the numbers. If you want longer labels, or more data, alter these two lines. Line 40 selects screen 1, because the graph is made on screen 2, which is opened when graph drawing begins. DEF KEYCODE 196,"GOTO 40" sets up key F4 so that if you accidentally go into Basic when using the program, F4 will get you back into the program without losing your data. (RUN would be disastrous of course as it would clear all of your data out of memory). Lines 50 - 150 are the main menu. Line 150 means that the instructions for option 1 start at 1000, 3 at 3000 etc.

```

1000 FOR X=1 TO 500
1010 IF SHIFT$(A$(X)(1 TO 5),2)
="scale" THEN LET F=X:EXIT
FOR: ELSE LET F=1
1020 NEXT X
1030 CLS : PRINT AT 5,0;"TO FIN
ISH, ENTER 'scale' AS LABE
L AND A NUMBER DIVISIBLE B
Y 4": PRINT AT 6,0;"WHICH
IS HIGHER THAN ANY NUMBER
PREVIOUSLY ENTERED, AS NUM
BER"
1040 IF F>1 THEN PRINT AT 8,0;"
THE LAST DATA ENTERED WAS
";A$(F-1);" ";A(F-1):

```

```

WINDOW 0,60,0,1: CLS (1):
WINDOW
1050 INPUT "LABEL ";A$(F)
1060 PRINT AT 0,0;A$(F)
1070 INPUT "NUMBER ";A(F)
1080 PRINT AT 0,10;A(F)
1090 IF SHIFT$(A$(F)(1 TO 5),2)
="scale" THEN GOTO 40
1100 INPUT "OK? (y/n)";Y$
1110 IF SHIFT$(Y$,1)="N" THEN P
RINT AT 10,5;"RE-ENTERING
PREVIOUS DATA": GOTO 1050
1120 LET F=F+1: WINDOW 0,60,10,
10: CLS (1): WINDOW : GOTO
1040

```

These are the instructions for option 1, adding data. In line 1000 the X loop must match the data array length, so change it if you have changed lines 20 and 30.

At the end of your data you must enter 'SCALE' as the label, and as the final number the figure against which the bar lengths are to be calculated. The scale is printed at the left of the graph, your scale figure at the top, halfway down - half the scale figure, and one quarter and three quarters in their appropriate places. So your scale figure should be higher than the highest number you have entered in your data, and divisible by 4. A scale of more than 3 figures will print into the graph area, and the graph will overwrite any figures below the top of the bars. Lines 1000-1020 search for the label 'SCALE'. This label and its data will be overwritten when new data is added, and line 1030 is an on-screen prompt to remind you to end the new data with the end-marking label and the scale the graph will need.

Line 1040 displays the last data item entered - useful if you stop for a coffee in the middle of entering data, and can't remember where you got to. It will also be displayed if you are adding data to some stored in the past. The line also clears the area at the top of the screen

where the next item will be displayed when it is being entered.

Lines 1050-1100 prompt you to input data and check if it is OK. If you want to change it, line 1110 lets you do so. When the label is 'scale' or 'SCALE', the program will exit to the main menu. Line 1120 removes 'RE-ENTERING PREVIOUS DATA' and loops back for the next item.

```

2000 SAVE OVER "graph" LINE 40
3010 GOTO 40

```

This option is only included for those who want to save the program with the data in situ. I prefer to run the program and load the data files from disc, but if you only ever use it for one set of data, this will be time saving. The program will be called "graph", and will auto-run from line 40.

```

3000 SCREEN 1: CLS : DISPLAY 1:
CSIZE 16,16: PRINT AT 0,8
,"GRAPH MENU"
3010 CSIZE 8,8
3020 PRINT AT 5,5;"1) MAKE GRAP
H"
3030 PRINT AT 7,5;"2) DISPLAY G
RAPH"
3040 PRINT AT 9,5;"3) SAVE GRAP
H"
3050 PRINT AT 11,5;"4) RETURN T
O MAIN MENU"
3060 PRINT AT 18,5;"ENTER OPTIO
N NUMBER"
3070 GET OPT: IF OPT<1 OR OPT>5
THEN GOTO 3070: ELSE : GO
TO OPT*100+3000

```

This is the option which makes the bar graph. It has its own menu, lines 3000-3070.

```

3100 CLOSE SCREEN 2: OPEN SCREE
N 2,4: SCREEN 1
3102 CLS : PRINT AT 5,0;"PLEASE
ENTER THE FIRST AND LAST
DATA LINES YOU WISH TO DIS
PLAY ON THE GRAPH"
3104 INPUT "FIRST DATA LINE NUM
BER ";N1

```

```

3106 INPUT "LAST DATA LINE NUMB
ER ";N2
3108 DIM GRA(N2-N1+1)
3110 LET L=1
3112 FOR I=N1 TO N2: LET GRA(L)
=A(I): LET L=L+1: NEXT I
3114 CLS : PRINT AT 5,2;"CREATI
NG THE GRAPH - PLEASE WAIT
"
3116 FOR I=1 TO 500
3118 IF SHIFT$(A$(I)(1 TO 5),2)
="scale" THEN LET SCA=A(I)
:EXIT FOR
3120 NEXT I
3122 SCREEN 2: DISPLAY 1: CSIZE
8,8:
3124 PEN 0: PAPER 15: CLS
3126 PLOT 48,12: DRAW 460,0
3128 PLOT 48,12: DRAW 0,163
3130 PRINT AT 0,0;SCA;AT 5,0;(S
CA/4)*3;AT 10,0;SCA/2;AT 1
5,0;SCA/4: AT 20,0;"0.0"
3132 PLOT 49,10: DRAW 0,3
3134 LET UPSCA=163/SCA
3136 LET ACCSCA=INT (456/3/LENG
TH(1,GRA()))
3138 IF N2-N1+1>115 THEN CLS :
PRINT "TOO MANY DATA LINES
FOR SCREEN": PRINT "NO MO
RE THAN 115 DATA LINES PER
GRAPH": PRINT : PRINT "AN
Y KEY TO RETURN TO MAIN ME
NU": PAUSE : GOTO 40
3140 LET E=51
3142 FOR D=1 TO LENGTH(1,GRA())
3144 FOR F=1 TO ACCSCA
3146 IF GRA(D)=SCA THEN PLOT E,
14: DRAW 0,161: ELSE : PLO
T E,14: DRAW 0,(UPSCA*GRA(
D))
3148 LET E=E+2
3150 NEXT F
3152 PLOT E,10: DRAW 0,3
3154 LET E=E+2
3156 NEXT D
3158 DISPLAY 2: PAUSE
3160 GOTO 3000

```

This is the graph menu option 1, which produces the graph. Line 3100 opens screen 2 for the graph, but the prompts which follow are on screen 1. Screen 2 is not displayed until the graph is complete. You are prompted for the first

and last data lines to be displayed on the graph. (The data line numbers can be found by using main menu option 4.) Line 3108 sets up an array into which lines 3110-3112 put the data to be used.

Line 3114 prints a message which is displayed on screen 1 while the graph is being built up on screen 2. The loop at 3116 finds the scale. (Change it if you have changed the array sizes.) Line 3122 starts the drawing of the graph on screen 2. Lines 3126-3128 draw the vertical and horizontal scale lines, and line 3130 inserts the scale at the top and the three-quarter-, half- and quarter-scale markers at the appropriate places beside the vertical line. Line 3132 inserts the first of the short marker lines which divide the bars.

Line 3134 calculates the factor by which each data number must be multiplied to determine the height of its bar. Line 3136 determines the width of each bar in pixels. We are using $xrg=512$, which is set by the SAM ROM when screen 1 is set to MODE 3, so a value of 2 moves along the X axis 1 pixel. Lines 3140-3156 draw the graph. If you have mistakenly used a scale which is lower than one of the numbers, the program will not stop with an error - line 3146 ensures that the bar for the too-high number will stop at the top of the graph.

Line 3158 displays the graph. Pressing any key will return to the graph making menu, but there is no message about this because we don't want to overwrite the graph screen.

```
3200 SCREEN 2: DISPLAY 2: PAUSE
3210 GOTO 3000
```

Graph making menu option 2 displays the graph until a key is pressed. Again, no message.

```
3300 SCREEN 1: DISPLAY 1: CLS:
```

```
      INPUT "NAME OF SCREEN TO S
AVE";filename$
3310 SCREEN 2: DISPLAY 2: DEVIC
E dl: SAVE filename$ SCREE
N$
3320 GOTO 3000
```

Graph making menu option 3 saves the graph to disc. The filename prompt is on screen 1, so that nothing corrupts the graph screen.

```
3400 GOTO 40
```

Graph making menu option 4 returns to the main menu.

```
4000 CLS : INPUT "DATA LINE NUM
BER TO START DISPLAY?";Q
4010 FOR Z=Q TO 500
4020 IF SHIFT$(A$(Z) (1 TO 5),2)
="scale" THEN EXIT FOR
4030 PRINT "data line ";Z;" ";
A$(Z);" ";A(Z)
4040 NEXT Z
4050 INPUT "ANY TO CHANGE? (y/n
)";Y$
4060 IF SHIFT$(Y$,1)="N" THEN G
OTO 40
4070 INPUT "DATA LINE TO CHANGE
?";Y
4080 CLS : PRINT AT 0,0;A$(Y);"
";A(Y)
4090 EDIT A$(Y)
4100 EDIT A(Y)
4110 CLS : PRINT AT 0,0;A$(Y);"
";A(Y)
4120 INPUT "OK? (y/n)";Y$
4130 IF SHIFT$(Y$,1)="N" THEN G
OTO 4090
4140 CLS : INPUT "DISPLAY AGAIN
? (y/n)";Y$
4150 INPUT "DATA LINE TO START"
;Z: GOTO 4030
4160 GOTO 40
```

Main menu option 4 displays the data, starting at any line you wish, showing the data line number, the label, and the number. Line 4050 offers the opportunity to edit existing data. Although the scale is not displayed, it can be edited by giving a data line number one higher than the last one displayed, in response

to the prompt. This option should also be used to discover the data line numbers of the first and last items to be used in a graph, because you are prompted for these in graph making. Change line 4010 if you have changed the data array sizes.

```
5000 CLS : INPUT "FILENAME (max
8 characters)";FNAME$
5010 LET F1$=FNAME$+".1": SAVE
F1$ DATA A$()
5020 LET F2$=FNAME$+".n": SAVE
F2$ DATA A()
5030 GOTO 40
```

Main menu option 5 saves the data to disc. One filename is required, and lines 5010-5020 add suffixes to the filename for label and number arrays respectively.

```
6000 CLS : INPUT "FILENAME (wit
hout .1 or .n)";FNAME$
6010 LET F1$=FNAME$+".1": LOAD
F1$ DATA A$()
6020 LET F2$=FNAME$+".n": LOAD
F2$ DATA A()
6040 GOTO 40
```

Main menu option 6 loads the data arrays. The filename is given without suffixes in response to the prompt, because they are added by lines 6010-6020.

```
65000 RUN
```

The program is saved to auto-run from this line. The program should be saved to the disc with MasterBASIC installed on it-

```
SAVE "AUTO_GRAPH2 LINE 65000
```

So there you have a straightforward program for making bar graphs. That is all I have written because that is all I want to do with it, but I always hope you will do some 'homework' and build on my programs. So, what about adding an option or two yourself? A non-bar graph would be easy enough - you would only have to plot the pixel at the end of the

bar and draw to the next one. A pie chart is more challenging. Or what about adding colour - a PEN change after every 12 bars, perhaps, so every year of monthly figures would be in a different colour. Or what about a change of PEN colour where a bar goes above a particular value, so you can see at a glance which figures are higher than a certain standard? Or, maybe, more sophisticated menus. (Personally I hate menus that expect you to move pointers around all over the place instead of entering a simple digit - but I know many people like them and find the straightforward ones dull.)

I have left you lots to think about, so send your improvements to John Wase for Short Spot. And have fun writing them.

HIGHWAY TEST

for all motorists, and L drivers for the new theory part of the driving test
96 random multi-choice questions on the motoring parts of "The Highway Code"

Copyright data has been reproduced

by permission of The Controller of

Her Majesty's Stationery Office

Large text, sound, illustrations and score

For home, training & public show use

only £6 for Spectrum +D / +3, PC*

*with free shareware Spectrum emulator

Sam version ready soon

includes the full version of

FLEXIPAGE

the author for all to construct
your own exercises and adventures
multiple use: interactive, free format
& auto. display for beginners to experts.

DEFENSIVE & SAFE DRIVING

PC CD ROM & VIDEO £35 each.

Send SAE for full list to:

Flexibase Services, 20 The Parklands

Droitwich Spa, Worcs. WR9 7DG

Tel. & Fax. (01905) 775840

BOXing EASY

By:- Mark Colwell.

This is a short DEF PROC that I wrote after reading a previous article on procedures in FORMAT. The PROC adds a new command to SAM Basic called, logically, BOX.

The DEFINed PROCedure which follows is numbered from line 65000 to line 65100 (although any line number could be used when you add it to your own programs):-

```
65000 DEF PROC BOX X,Y,W,H,P,F
65010 DEFAULT X=0,Y=175,W=255,H=
      175,P=15,F=0
65020 IF X<0 THEN LET X=0
65030 IF X>255 THEN LET X=255
65040 IF Y>175 THEN LET Y=175
65050 IF Y<0 THEN LET Y=0
65060 IF X+W>255 THEN LET W=255-
      X
65070 IF Y<H THEN LET H=Y
65080 PLOT PEN P; X,Y: DRAW TO P
      EN P; (X+W),Y: DRAW TO PEN P
      P; X+W,Y-H: DRAW TO PEN P
      ; X,(Y-H): DRAW TO PEN P;X
      ,Y
65090 IF F=1 THEN FOR Z=Y TO Y-H
      STEP -1: PLOT PEN P; X,Z:
      DRAW PEN P; W,0: NEXT Z
65100 END PROC
```

The syntax for the procedure is:-

```
BOX X,Y,W,H,P,F
```

X and Y are the PLOT positions for the top left hand corner of the box you want to draw. W is the width of the box in pixels. H is the height of the box, again in pixels. The next parameter is P, this is used to set the PEN used both to draw the BOX and, if F=1, to fill the box. The final parameter, F, is the FILL flag. If

F=1 then the box will be filled with colour. If F=0 then the box is left empty. The DEFAULT command at line 65010 means that if any command parameters are left out then the default given is used. This does mean that you can use just the command BOX on its own and draw a box of the maximum size.

As written, which was after all for my own personal use, you need to set CSIZE to 8,8 and the Sam has to be in MODE 4 before calling the routine. If any of the boxes go off the screen, they will only be drawn to the edge, also if x or y are too big or too small they will be rounded up or down to the nearest edge.

If you use Mode 3 then the defaults will need changing as will the tests which keep the box on the screen.

The routine is quite simple and could well be expanded to allow for different screen modes or fill patterns. However, as a general purpose routine I think you will find it very useful.

Here is a simple demo:-

```
10 MODE 4: CSIZE 8,8: PALETTE
   : CLS #
20 LET X=0: LET Y=175: LET W=
   10: LET D=10: LET P=15: LE
   T F=1
30 FOR I=1 TO 7
40 BOX X,Y,W,D,P,F
50 LET W=W+10: LET D=D+10: LE
   T X=X+10: LET Y=Y-10: LET
   P=P-1
60 NEXT I
70 LET X=245: LET Y=175: LET
   W=10: LET D=10: LET P=1: L
   ET F=0
```

Turn To Page 22

TALKING C

By:- Martin Fitzpatrick

This is the first in a series of articles on SAM C, helping you to understand the language and get the most out of it. Each month I'll introduce new commands and give you programs to inspect and modify, and there will be no C jokes at all. So lets C how we get on then shall we... (ho ho)

THE BASICS OF A C PROGRAM

The whole of the C language is based around functions, the most important of which is the main() function. This is called (sometimes with parameters) whenever the program starts, and contains the main part of the program between the curly brackets following the command.

Other functions can either be defined in the program itself, or can be loaded in through one of the library files using the #include "xxxxxxx.x" pre-processor command. There are two types of file which can be loaded in using the #include command - header files and 'c' files. Header files have the extension .h and are loaded at the top of the source and 'c' files have the extension .c and are loaded at the bottom. The .h usually have corresponding .c files, the only exception being the "stdio .h" file.

There are only a few keywords including things like main() mentioned earlier and int, char etc. These do not require a library file to operate.

So, the basic C program would look like this:-

```
#include "stdio .h" Includes the
standard C header file.
#include "xxxxxxx.h" Includes
another header file.
```

```
main() The main() function called when
the program is first run.
```

```
{
.
.
. Your program fits between the curly
brackets.
.
.
}
```

```
#include "xxxxxxx.c" Includes a C
library file.
```

NOTE: All lines in C must end with the standard C end of line marker the semi-colon (;). The only exception is following a loop keyword where instead there is a | to signify the start of the loop or another keyword followed by a semi-colon to signify a single line loop. Because of this flexibility you can spread one line over many lines of source or put many lines of source on one line.

VARIABLES IN C

Unlike Basic, in C you have to declare each individual variable before it can be assigned a value. To do this you use the commands int and char eg. int a; sets up the variable 'a' for use.

NOTE: You must always set up the variables at the start of the function.

What's the difference between int and char? Well and INTeger can hold a number between -32768 and +32767 and a CHARacter can hold a number

between -128 and +127.

Here another command comes in, unsigned. This allows you to disable negative numbers, and by doing so double their positive range ie. unsigned int a; sets up a variable called 'a' which can hold a number between 0 and 65535.

Variable Type Size(bytes) Range of Value

Variable Type	Size(bytes)	Range of Value
int	2	-32768 +32767
char	1	-128 +127
unsigned int	2	0 +65535
unsigned char	1	0 +255

As in Basic you can set up dimensional arrays to hold groups of numbers eg:-

int a[10][2]; would set up an array of 20 numbers (10*2) each with a range of -32768 to +32767. You can build arrays of char's and this is how you store strings - A char can only hold one single letter by itself.

NOTE: The first part of an array is section 0, so to store the very first position in array k[10][10]; in variable x you would use x=k[0][0];

char a[100]; would set up a string array 100 characters long, which can be altered using commands in the "string.c" library..

NOTE: Letters are held by their ASCII code (0-255) explaining why the range of a char is at its max +255.

It is possible to convert between the different types of variable, but it should be noted that if you convert from an int of a value over 255 to a char (max value 255) the higher bytes of the int will be lost, leaving you with a number which is probably of no use.

Phew!

In C there are various ways to alter the value in a variable:-

C Notation C Shorthand Basic Equivalent

a=x;	a=x;	LET a=x
a=a+x;	a+=x;	LET a=a+x
a=a-x;	a-=x;	LET a=a-x
a=a+1;	a++;	LET a=a+1
a=a-1;	a--;	LET a=a-1

The advantage of using these shorthands is that it saves you typing, and perhaps more importantly (well almost) it helps increase the speed of your compiled program.

The ++ and -- can be placed before or after the variable to choose when the increment or decrement is to take place. eg:-

x=4;

y=10;

c=y-x++;

c=y-4=6 and then x will increment.

x=4;

y=10;

c=y++x;

x will increment and then c=10-5=5

I'll leave variables for now and move on to some functions available in the "stdio.h" file.

"STDIO .h" LIBRARY FUNCTIONS

1. PRINTING USING printf ("",x,x..)

This is the standard C function for printing characters to the screen, much like the Basic command PRINT eg:-

printf("Wibble!"); Would print 'Wibble' on the screen.

You can choose the position of the text by using the library function at(y,x); eg:-

```
#include "stdio .h"
```

```
main()
```

```
{
```

```
at(11,11);
```

```
printf("Arf");
```

```
at(12,12);
```

```
printf("Arf");
```

```
}
```

Would print...

```
Arf
```

```
Arf
```

...somewhere near the middle of the screen. The printing of numbers and letters from variables is controlled in C by the use of control codes:-

Code	Prints
%d	signed decimal
%u	unsigned decimal
%b or %O	binary (unsigned)
%x or %X	hexadecimal (unsigned)
%c	ASCII character
%s	ASCII string

These are embedded in the text and cause values to be printed from a list following the quotes eg:-

printf("%d",10) would print 10 (decimal)

printf("%b",10) would print 110 (binary)

A '\n' can be placed in the text to force a new line at that position eg:-

```
#include "stdio .h"
```

```
main()
```

```
{
```

```
int a,b;
```

```
a=10;
```

```
b=72;
```

```
printf("Hallo number %d \nWhich number %d",a,b);
```

```
}
```

Would print:-

```
Hello number 10
```

```
Which number 72
```

Print() will be explained in further

detail in a later article in this series.

2. READING THE KEYBOARD USING getch()

Also in the "stdio.h" file are functions for reading the keyboard. getch() is a very simple command which first of all waits for a key-press and then returns the ASCII value of the key pressed in your chosen variable eg:-

```
#include "stdio .h"
main()
{
char k;
k=getch();
printf("%c /n %d",k,k);
}
```

This would wait until a key is pressed then print that character on the screen, with the ASCII character written underneath (remember the %c control code prints a character whilst the %d prints a number).

Like I said, it's a simple command, and that is all there is to it.

LOOPING IN C

There are a large number of looping methods available in C just as in Basic, here is a brief explanation of the main types...

1. FOR...NEXT

Take for example the Basic loop:-

```
FOR a=b TO c STEP d
NEXT a
```

The C equivalent is:-

```
for(a=b;a<=c;a+=d){
}
```

1. (a=b) Set starting value for the loop variable (here set to b).

2. (a<=c) Loop round while true (loop continues while a is less or equal to c).

3. (a+=d) Increment\Decrement value (a increases by d each loop).

So, FOR a=1 TO 10:PRINT a.NEXT a would become for(a=1;a<=10;a++) {printf("%d",a)} or simply for(a=1;a< 10,a++)printf("%d",a),

NOTE : If there are either no actions or only one action in a loop this can be placed on the same line as the loop followed by a semi-colon

NOTE : The variables for a for... loop must be set up before use.

for(a=0;b=2;c++); is a perfectly valid loop, which would on entry set a to 0, loop round while b=2 and with each loop increment c by one.

for(a=0;a++) would set up a continuous loop because there are no end conditions.

2. DO...WHILE

Just as in Basic the DO...WHILE loop can be used for setting up loops where no loop variable is required. For example the Basic loop:-

```
DO WHILE x=10
```

```
LOOP
```

becomes

```
while(x==10){
```

```
}
```

...and the BASIC loop.

```
DO
```

```
LOOP WHILE x=10
```

becomes

```
do{  
} while(x==10);
```

The difference between the loops is the while(x==10){} loop will check the argument before starting the loop whereas do{}while(x==10); will execute the loop once before checking the argument.

An infinite loop can be set by giving it an argument that is always true such as while(7>6){} or while(1){}

3. IF..THEN

Before this month's program I thought it would be a good idea to describe the C equivalent to Basic's IF..THEN procedure.

The basic principal is the same as in Basic and follows roughly the same idea. Take a look at the following C if statement.

```
if(x==0)printf("Hello");
```

This would print 'Hello' on the screen if x was equal to zero (note the double equals). The < and > can be used with the equals or alone just as in Basic eg -

```
if(x>0)printf("Hello");  
if(x<=0)printf("Wahey");
```

The logical operators in C are as follows -

Operator	Action
	OR
&&	AND
!	NOT

The ! can be used with the equals and <> eg

```
if(x!=0)printf"x not equal 0";  
if(x!>0)printf"x not greater than 0";
```

So this example.....

```
if(x==0 && c<10 || d>=1)printf("Bugle");
```

...would print 'Bugle' on the screen if x=0 and c isn't less than 10 or d is greater or equal to 1. Simple huh?

NOTE: If there is more than one outcome from the if statement then you can enclose the instructions between curly brackets (as with the loops) but if

(like the examples here) there is only one outcome then you can put it on the same line followed by a semi-colon.

Just as in Basic there is an else command, and this is placed after the last set of instructions eg-

```
if(a==10)x=1;else x=2;
```

This would let x equal 1 if a=10 else x would equal 2.

ATTACK OF THE KILLER X's

Now it's time for the monthly program, which includes most of what has been learnt so far. This month it's a little game where the aim is to dodge the x's as they home in on your O. OK so it's not very exciting but it explains stuff, and gives you the chance to try out programming a game. I'll explain it in sections as you type them in, so here we go....

```
#include "stdio .h"
```

```
main()
```

```
{
```

```
int score
```

```
char k,a,x,y,ox,oy;
```

```
char pos[3][2];
```

```
score=0;
```

```
for (a=0;a<2;a++){
```

```
pos[a][0]=a*9;
```

```
pos[a][1]=a*5;
```

```
}
```

```
x=11,y=11,a=1,ox=x,oy=y;
```

This section of the program sets up the program by loading the "stdio .h" header file, then initializes the int, char variables and a character array called 'pos' to hold the x and y co-ordinates of the killer X's

Next the for loop assigns x and y variables to the pos' array where the x=a*9 and y=a*5. The x & y variables are set to the starting point for your 'O' (11,11). Also ox and oy are set, these are

the old x and old y of your character so the old position can be cleared as you move

```
do {
```

```
k=getc();
```

```
if (k== 'q')y- ;
```

```
if (k== 'a')y++ ;
```

```
if (k== 'o')x-- ;
```

```
if (k== 'p')x++ ;
```

This section sets up a do loop (the ending conditions are at the end) and then checks the keyboard with getch() returning the key ASCII code in k.

The value in k is checked against the letters in the if statement (letters are held between inverted commas) and the x position is altered according to which key has been pressed. For example if q was pressed the y variable would decrease (moving your character up the screen).

```
at(y,x);
```

```
printf("O");
```

```
at(oy,ox);
```

```
printf(" ");
```

```
ox=x;
```

```
oy=y;
```

Next your 'O' is printed on the screen and old position is printed over with a blank space..

```
a++ ;
```

```
if (a== 3)a=0;
```

```
at(pos[a][1],pos[a][0]);
```

```
printf(" ");
```

```
if (pos[a][0]<x)pos[a][0]++ ;
```

```
if (pos[a][0]>x)pos[a][0]-- ;
```

```
if (pos[a][1]>y)pos[a][1]-- ;
```

```
if (pos[a][1]<y)pos[a][1]++ ;
```

```
at(pos[a][1],pos[a][0]);
```

```
printf("x");
```

```
score++;
```

```
at(0,0);
```

```

printf("%d",score);
} while (x!= pos[a][0] || y!=
pos[a][1]);
)

```

This section is for controlling the killer X's. First a is incremented (a holds the number of the current x to be controlled - only one is moved for every move you make) and then if a=3 it is set back to 0 to start the loop again.

A blank space is printed at the position held in the pos array (which is effectively the old x and y position) and then the x and y of your O is checked against the position of the current killer X, and depending on this the pos of the current killer X is altered. For instance if the x position of the current killer X is higher than your O's x position then the killer X will move to the left (pos[a][0]-). The new position is then printed on the screen as an 'X'. The value in score is then incremented and this is printed at position 0,0.

The while(..) at the end of the loop checks to make sure that x is not equal to pos[a][0] or y is not equal to pos[a][1] and if this is true the loop starts again or in other words if x=pos[a][0] or y=pos[a][1] then the loop ends. This has the effect of quitting the game if you hit an X - remember a holds the value of the current killer X.

Well that's all for this month, but just before I go... If anyone has any ideas for little programs they'd like to see me write in C in this little section then write to me, Martin Fitzpatrick, via the **FORMAT** office ...And I'll see what I can do. I'm not promising, but if it is small, and if I can use it to illustrate this series, then I will try - so get writing and keep reading and you never know what a future episode will bring.

Continued From Page 16.

```

80 FOR I=1 TO 7
90 BOX X,Y,W,D,P: REM Note th
at I don't use P on this c
all because the default fo
r P is zero which is what
I want here.
100 LET W=W+10: LET D=D+10 LE
T X=X 20. LET Y=Y 10: LET
P=P+1
110 NEXT I
120 CSIZE 8,16: REM Turn on bi
g printing
130 PRINT AT 4,14: PAPER 7: PE
N 0:"BOX"
140 CSIZE 8,8: REM Back to nor
mal size
150 PRINT AT 10,7: PAPER 7. PE
N 1:"The DEF PROC that", A
T 11,9:"gives you the": AT
12,9:"BOXes you want", AT
14,10:"Anywhere..."
160 PAUSE

```

I hope you will find lots of uses for this DEF PROC.

FORMAT

SAM REPAIR SERVICE

We are pleased to be able to offer readers an official, West Coast approved, repair service for SAM Coupé and SAM elite computers and add-ons.

PRICING

Because every fault is different we don't think it is fair to charge a fixed rate. When we receive a machine it is tested and a quote is sent to you for the repair you decide for some reason not to go ahead with the repair you are under no obligation.

Pack your machine well (we will use your packing for its return). Please phone us on 01452-412572 for advice on dispatch (we can even arrange collection). In many cases we can also give an estimate over the phone. All repairs returned by overnight carrier so tell us which days there will be someone in to sign for the parcel. Please quote your INDUG membership number and give a evening contact phone number.

Send your machine to:-

Format (SAM Repairs),
34, Borton Rd, Gloucester, GL4 0LE.

A GENIUS AT WORK

Part 2.

By:- George Siougas.

Last month's article, about the compatibility of GENIUS mouse with the PLUS D, was written several months ago, since then the two interfaces have been working perfectly together, so I can still guarantee their total compatibility!

I'm writing this follow-up about some hardware modifications we can make to improve the GENIUS mouse, you should re-read last month's article before reading this one.

If you remember, I wrote about twisting the strong wires that come from the PCB to the edge connector. You will be happy to know that only 15 of these wires (out of the total of 64) are really needed! The rest are just soldered on the PCB and don't make any connection with the circuit of the interface. So we can cut off those 39 useless wires and this will make the twisting much more easier! Besides we can now twist the 15 wires a little more, so as to achieve an angle of 180 degrees precisely and have a totally upright interface. The 15 wires we have to keep are:-

On the top row: D7, D0, D1, D2, D6, D5, D3, D4, IORQ, A8, A10.

And from the bottom row: 5V, one of the two 0Vs (better the one which is under D0), A5, A9.

Now after twisting you only have to take care of 5V and 0V not to touch the D7 and D0 (you'd better twist the 5V and 0V to the left a little bit)

Next, I've found out two compatibility

problems with GENIUS mouse interface (not related to the PLUS D, of course), but I've managed to correct them. Firstly the built-in KEMPSTON joystick port has various problems with some games, and secondly the whole interface is incompatible with the MULTIFACE 128 (at least with the DISC:PLE/PLUS D 87 2 version I have).

Well, you can have a real KEMPSTON joystick port and compatibility with M128 if you cut the A9 wire! But now the mouse doesn't work. So you can put a switch in the A9 wire; when it is 'on' you can use the mouse, but when you need to use the joystick port or the M128 you just need to turn the switch 'off' at first. And you can do this even if your Spectrum is turned on, you won't harm it! Only sometimes will the computer may halt or reset, but you can avoid even this by adding a 22K resistance, its one edge should be soldered to the 5V wire, and the other to the part of the A9 wire which is soldered on the PCB. Now the switching is smooth and the computer won't understand it!

I have done the modifications above and my system which is composed of a Spectrum+, a PLUS D, a Multiface 128 and two hard Y-connectors (simple ones from B.G. Services and not TWOFACES) which have a GENIUS mouse interface and a ZX Interface 2 attached. It all works even as the most optimistic would like!

The HELP PAGE

Edited By:- Ray Bray.

PHOTO SCANNING SERVICE



Have you got pictures, photos, drawings, logos, signatures you would like to include in a publication, newsletters etc. You could stick them within your printed text page, but is the picture the size you want it, if you are using colour it could cost you quite a bit in colour photo copying costs. Pictures also tend to come out more darker and less detailed when photocopied. This is where the photo scanning service may help you. All you need to do is send in your pictures upto A4 in size and state what size you would like the final output to print out to your printer (120mm max for Grey shade pictures, and 65mm across by 55 mm down max for colour pictures. Note I can convert colour pictures to grey shade).

The picture image is saved onto disc at a maximum pixel resolution of 1750 by 1750 (equivalent to 32 1/2 cm Mode 3 SCREENS special software, then prints out your picture at high speed anywhere onto an A4 piece of paper. It costs £1 per picture (the 6th, 12th, 13th picture is Free), Then ADD £1.50 for postage & packaging. There is also a special scanning service for 720dpi Postscript pictures, send off for the sampler pack below for details. If you would like a sampler disc with 4 pictures, 2 minutes per picture, samples more information, order form, then send in a blank formatted disc with two 20p coins stuck on the back. Please state which Printer you own.

THE HARD DRIVE PACK £149



HDOS
SC_HD
LOADER

The Hard drive pack consists of the Power supply casing unit (2 years guarantee), 5 D Software Hard drive interface, IDE Connecting lead, Hard Drive Operating System, Manual & SC_HD LOADER.

HARD DRIVES from 210MB to 540MB (£55-£90).



All Hard drives are carefully selected second hand, Modern slimline type, quiet low noise level, surface/Format tested for no Bad sectors, guaranteed for 1 year.

SC_WORD pro (The DTP package £29.99)



SC_WORD pro the most advanced word-processor, built in smooth non jagged Fonts (24 are supplied, most in 1 sizes), the same output you would get from expensive PC's. Multi column ASCII LPRINT word processor output, with converter. Comes with a high resolution Screen dumper with 10 sample SCREENS. Draw lines of any thickness at any position on an A4 piece of paper.

Disc and Hard drive installable version.

Professional A4 Manual plus Lester piggyot guide on getting the best out of SC_WORD pro. Compact sampler pack with high resolution pictures. Also a paper based catalogue of over 1000 to choose at extra cost plus the Photo sampler pack as above.

SC_HD LOADER a modified MasterDOS which will also load in code files, without using any extra memory.

You will need a 512K Sam, MasterDos, any printer except a 300 dpi inkjet or Laser printer. When ordering please state Printer you own.

STEVES SOFTWARE

7 NARROW CLOSE
HISTON
CAMBRIDGE.
CB4 4XX



& FAX

01223 235150

(after 6pm MON-SAT)

Email SteveSoftware@msn.com

Buy now pay later, just phone the above number with the items you would like, goods sent out the next day first class, with a payment slip for which you have upto 3 months to pay back.

Since the last Help Page we have received useful advice from readers on several queries which have appeared in recent issues of *FORMAT*. One of the most interesting and comprehensive contributions came from Ken Murray-Taylor of Redruth, Cornwall.

I recently gave Ken some general advice on connecting monitors to SAM when the TV he was using packed up. This started him on a search for a suitable monitor and as a result of this he sent me a stack of information which I am sure will be useful to many readers. The monitor he settled on was the Mitsubishi FA3415ETKL Multisync SVGA 14" colour monitor with 0.28 dot pitch tube and a resolution of 1024 x 768. This monitor supports CGA/EGA (TTL) and VGA/SVGA (Analogue) inputs via a 15 pin 'D' connector. The connection to SAM in the analogue mode is as follows:-

MITSUBISHI		SAM	
Pin	Signal	Signal	Pin
1	Red Return	---- RGRND	19
2	Red	---- Red	16
3	Green Return	---- GGRND	9
4	Green	---- Green	11
5	Blue Return	---- BGRND	5
6	GND	--- GND	4
7	N/C		
8	V Sync	---- CSYNC	16
9	H Sync	---- CSYNC	16
10	Blue	---- Blue	7
11-15	N/C		

Ken also reports that the Taxan 776 14" Multisync Monitor also works well with SAM (also in the analogue mode). The connections to SAM are the same

(bearing in mind the different pin numbers) with the exception that SAM CSYNC is connected only to the VSYNC pin of the monitor. The pin-outs are as follows:-

TAXAN		SAM	
Pin	Signal	Signal	Pin
1	Red	--- Red	16
2	Green	--- Green	11
3	Blue	--- Blue	7
4	V Sync	--- V Sync	16
5	H Sync	--- H Sync	N/C
6	Red Gnd	--- RGRND	19
7	Green Gnd	--- GGRND	9
8	Blue Gnd	--- BGRND	5
9	Gnd	--- GND	4

It would seem from this that most multisync monitors would possibly work with SAM and it might be worth experimenting with standard VGA & SVGA monitors. Thank you for this information Ken.

Following on from this, Paul Dudley of Talworth, Surrey, has a 1992 Dell monitor from a PC and wanted to know how to connect this to his SAM. He sent in a drawing of the 15-pin D type connector on the monitor but was unable to supply the pin-out details, apart from noting which pins were missing.

From this limited information it is possible that this is a VGA monitor which has the pin allocations shown below. It is not certain whether or not the SAM CSYNC signal should be connected to both sync pins but if this does not work then disconnect the horizontal sync pin. Please let me know the result.

DELL		SAM	
Pin	Signal	Pin	Signal
1	Red	---	16
2	Green	---	11
3	Blue	---	7
5	Self Test	---	N/C
6	Red Ground	---	13
7	Green Ground	---	9
8	Blue Ground	---	5
10	Ground	---	4
11	Ground	---	N/C
13	Horiz Sync	---	16
14	Vert Sync	---	16

The next topic concerns printers and we have received two tips from readers arising out of questions published in the May edition. Paul Featherstone has written in response to Archie Perry's problem with getting SAMpaint to print with a 24-pin Panasonic KX-P2135 printer. Paul writes; "To get SAMpaint to print with a 24-pin printer you should do the following on a backup copy of SAMpaint."

LOAD "code" CODE: POKE 55691,4:
POKE 55701,4: SAVE OVER "code"
CODE 32768,51078.

He says the credit for this solution should go to Steve Nutting (of Steve's Software). Thank you Paul for passing that on and also to Steve Nutting who devised that fix

The second printer tip concerns Mr McKay's problem in getting COPY to work when using BetaBASIC with Specmaker. That tireless contributor to **FORMAT**, Ettrick Thomson, writes to say that he can run BetaBASIC under Specmaker V3 and that LPRINT and COPY both work using a Star LC/1011 printer. The BetaBASIC came from Release 3.0 version 49 as supplied on tape for use with Spectrum Plus. Ettrick says that COPY uses ESC,"3",24 to set line spacing to 24/216 inches and ESC,"* ,5,0,1,... to use Graphics mode 5,

and print 256 dot per line. Thank you for that information Ettrick, this should at least enable T. McKay to check whether his printer uses the same codes. Incidentally, to make it absolutely clear, Graphics mode 5 prints at 72 dots per inch and the 256 dots per line is set by the two-byte value 0,1.

Still on the subject of printers, I must confess to a spot of digit trouble in my answer to H Smart's problem of getting the underlining to work with Tasword and an Epson RX80 printer. As a result of not being able to read my own writing (and I believe I am not alone in that!), I typed the underline OFF code as 27,95,49 instead of 27,45,49. Mr Smart has since written to say he managed to resolve the problem despite the error. In connection with this problem I asked if anyone could let me have a copy of the RX80 codes and in response I received a full list from Carol Brooksbank and a similar list plus other data on Epson codes from Bob Haslam. Thank you both for this.

Some time ago Ian Minshull of Thorpe, Surrey, purchased the PCG DTP pack for SAM and finds that, when using Typeliner, the cursor keys have no effect in altering the height and width of either the text box or the lines or box in the Line/Box mode. He also finds that when he selects D2 the program still operates on D1 although selecting D0 does appear to activate tape. The source of your first problem most likely lies in the fact that you purchased the DTP 'some time ago' If you have a memory like mine you will have forgotten that there was an insert in the pack which listed the differences in the key functions for the SAM version to those printed in the handbook, which is for Spectrum. In case you have misplaced this insert, the keys to use with SAM in place of the cursor keys are:

Move left --- Key 5
Move right --- Key 8

Move down --- Key 7
Move up ---Key 8

Although it is a tedious task, it is worthwhile going through the DTP handbooks and inserting the various changes in the text, it certainly saves time and temper later! With regard to the problem of using Drive 2, I believe that this again is due to the program being Spectrum based. If you are using Drive No.1 on start-up then, when you wish to switch to Drive No.2, just remove the disc from Drive 1 and do a CAT. The screen will go blank and the error message 'check disc in drive' will appear. Type DEVICE d2, ENTER, and then press F4. The previous screen will be displayed again and Drive 2 will be the current drive. The drive cannot be changed back to Drive 1 without going through a similar procedure. This rather defeats the object of making use of two drives as it is much quicker to change the disc in Drive 1 than go through this performance. I don't know whether you can force a disc error without removing the disc, which would be a more elegant method and also save some time. Finally, if any reader has found a way of amending the program to enable drive changes to be made by toggling 'D', would they please let me know?

In response to a request by R.P Roggeveen of the Netherlands published in the Letters section last May, Mr E.J Petty (?) of Weymouth wrote saying that he has located a Joystick which is compatible with SAM and Atari computers, which he has purchased and is now using. This is the SAITEK MEGAGRIP II MX-220. It has a pistol type grip and is switchable (4 positions) and works with SAM on setting C and Atari on setting D. It also has a turbo button should anyone discover a SAM game which can make use of it. Mr. Petty says that all-in-all it is quite a good stick, looks good and feels reasonable (a little "slack" for his own

tastes for flight simulators) but perfect for the youngsters when playing arcade games. The price is £12.99 and if you cannot find one locally, they can be purchased by mail from: The First Computer Centre, Unit 3, Armley Park Court (off Cecil Street), Armley, Leeds, LS12 2AE. Telephone: 0113 231 9449

Lastly back to the topic of SAM bugs which I brought up in the June issue. Peter Williamson of Sleaford has experienced a case of program corruption similar to that mentioned in the June issue. He runs a program which contains a large amount of data held in several banks of DATA lines and the program extends to address 475135. Everything would work fine for a while and then, instead of a number being displayed, a keyword would appear on the screen. Thus he traced to a corrupted DATA line. He corrected the line and saved the program but the next time he ran the program the same fault occurred. This fault now pops up now again when he uses the program. This sounds like a variation of the bug I found which, by the way, has now happened again with another long program I am developing. Having suspected that it was connected with the paging process I looked at the address of the corrupted line and found that the line started at 32701 and ended at 32773. Now the border between memory Section B and Section C is at 32768, which is precisely where the corruption started. This tends to support my theory, as Sections B & C are paged in and out for the screen as required, and for the upper lines of an extended Basic program. But why should the line be corrupted, for the program line is not being physically moved in memory?

I encountered another bug(?) whilst writing this contribution. This is probably not a problem with SAM but rather one which is connected with *The Secretary*. I printed out page 2 to check and make some amendments and when I

tried to print page 8, page two printed again. No matter what I tried all I could get was a printout of page 2. I eventually switched off and started again and all was well. Apart from wasting a lot of time and several sheets of paper, no harm was done. Can anyone guess what caused this glitch?

That's all we have for this month. Please keep sending your problems/answers to the following addresses:-

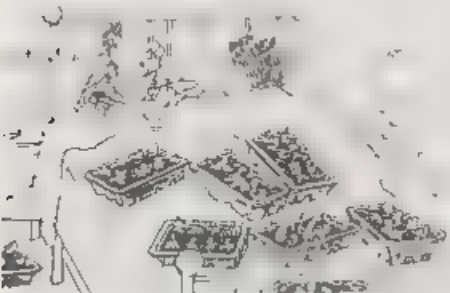
Anything SAM or General Purpose:-

Ray Bray (FORMAT Help Page),
Spring Cottage, Bourne Close,
Porton, Salisbury, Wilts, SP4 0LL.

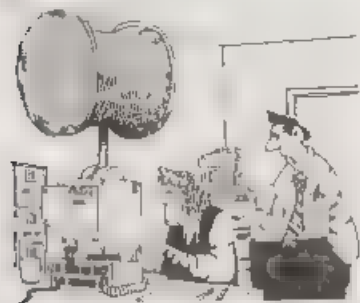
Anything +3, CPM:-

Mike Atkins (FORMAT Help Page),
70, Rudgwick Drive,
Bury, Lancashire, BL8 1YE.

Please remember that if you want any discs/printouts etc returned then you must include an SAE.



Computing within the home is a pain.



Oh yeah, and try not to enter the wrong password.

Writing for **FORMAT**

The Spectrum is now 14 years old, the SAM nearly 7. In that time an incredible amount has been written and published about our two favourite machines. But many of today's Spectrum and SAM owners have not been around from the start. In fact our research shows that the average Spectrum reader of **FORMAT** has had his machine less than 5 years while the average for SAM users is only a little shorter.

With these facts in mind I would like to pose a question. Do you have magazines like the early Sinclair Users, Your Spectrum, ZX Computing, Popular Computing Weekly or Your Computer? You know, the mags that used to treat the Spectrum with respect. You do!!! Wonderful.

Most of these early mags have never been seen by the majority of current users and we think that is a shame. There were many good articles and lots of type-in programs in those days - I believe they are the mags that trained a whole generation of programmers - and we feel that some of these lost gems deserve to be reprinted in **FORMAT**.

What we would like is for some of these articles to be re-typed, the programs fully tested and debugged (many of the magazines had very suspect methods of getting the listings into print) and in some cases, if you can, even translated to SAM.

Provided the original author and publisher is credited there is no reason why these articles and programs cannot bring a ray of sunshine to the latest generation of Spectrum and SAM users. It would be a shame that more people can't enjoy these excerpts from the golden age of home computing.

MORE

New Tricks For *The Secretary*

Part 2

By:- Rev. Tony Kinch.

In the first article in this series I indicated some of the problems in using *The Secretary* with either bubble jet or ink jet printers, and the method I had adopted in order to overcome them. I also gave the changes to the "PRN_codes" file in order to create the new file "PRN_couri" to operate these changes. In fact, for those using Cannon Bubble Jet printers, most of these changes may not have been needed because *The Secretary* is pre-set for them. With my Epson Stylus 400 printer they were, however, necessary.

We now have the position where 'typewriter' style fonts (those with fixed spacing for each character) are capable of being printed in very high quality on an ink jet or bubble jet printer, but 'scaleable' fonts cannot be used. This second article deals with the creation of new "PRN_" files in order to be able to use the different size prints available with 'Roman', 'Sans Serif', 'T Roman' and 'H Sans Serif'.

The method I have adopted with the two fonts 'Roman' and 'Sans Serif' is to treat the 10pt size as a 'body type': i.e. the type which is used to produce the 'body' of a document. I have set it in such a way that it will give a justified right-hand edge to the printing. I have also allowed for 12pt to be used with a double embedded control code in such a way that it too will produce a justified right-hand edge (For the purists, what I have set is non-proportional Ehte for 10pt, and, by switching proportional off,

non-proportional Pica for 12pt. they are in fact both 10.5pts high.)

All other type sizes, including 12pt in its proportional form, are best used for text enhancement or display copy.

For 'T Roman' and 'H Sans Serif' there is no 'body type', because these fonts are purely proportional, and cannot be used with *The Secretary* to produce print with a justified right hand edge.

Draft quality print is produced by use of the 'economy' button on the control panel of the printer, which preserves the letters in their correct sizes and shapes, maintains the correct vertical and horizontal spacing on the paper but uses much less ink. It will be noted that there is no difference in print speed when economy mode is in use. The following embedded control codes are used throughout in order to produce the different size print.

- 8pt. SYMBOL A
- 10pt SYMBOL S
- 12pt SYMBOL D
- 14pt SYMBOL E
- 18pt SYMBOL N
- 24pt CHR MENU O
- 30pt CHR MENU L

With "PRN_roman" in use, SYMBOL O toggles proportional printing off/on so that setting 12pt (SYMBOL D)+SYMBOL O (toggling proportional OFF) will allow 12pt to print as justified pica text. When it is used again to set proportional back on, the 12pt code should be re-set as well.

With "PRN_T_rom", SYMBOL O produces a 'hard' space, three times the width of a normal space. This is because the space in a proportional font is very narrow and the extra width space is needed at times to take print over to the right hand side of the page for setting

Table 1.
FILE: PRN_roman
Text Embedded Printer Control Codes

Optional ON	27 112 0 27 80
Optional OFF	27 112 1
Bold ON	27 69
Bold OFF	27 70
Italics ON	27 52
Italics OFF	27 53
Underline ON	27 45 49
Underline OFF	27 45 48
Normal Size	27 88 1 36 0 27 43 60
Expanded	27 88 1 28 0 27 43 70
Double Height	27 88 1 24 0 27 43 60
Subscript	27 88 1 16 0 27 43 50
Superscript	27 88 0 20 0 27 43 60 27 77
Courier	27 107 0
Sansserif	27 107 1
Orator Caps	27 88 1 48 0 27 43 120
Orator Lower	27 88 1 60 0 27 43 150
Print Colour	27 114 0
MODIFY Hash	27 82 0 35
MODIFY Pound	27 82 3 35

Start Of Document Printer Control Codes

Reset Printer	27 107 0
IBM Mode	
NLQ	
Draft	
Paper Length	
Pica Pitch	
Elite Pitch	
Condensed Pitch	
Left Margin	27 108 10
Right Margin	
Line Spacing	27 65 12
Paper Out Enable	27 57
Paper Out Disable	27 56
Additional 1	
Additional 2	

addresses etc, or for tabulations.

To set up the control files, use your working disc, and load to the first menu. Press 'P' for Printer Control Codes and set the codes as indicated in tables 1 and 2 below. (For details of how to do this see the next page.)

Table 2.
FILE: PRN_T_rom
Text Embedded Printer Control Codes

Optional ON	32 32 32
Optional OFF	32 32 32
Bold ON	27 69
Bold OFF	27 70
Italics ON	27 52
Italics OFF	27 53
Underline ON	27 45 49
Underline OFF	27 45 48
Normal Size	27 88 1 36 0 27 43 60
Expanded	27 88 1 28 0 27 43 70
Double Height	27 88 1 24 0 27 43 60
Subscript	27 88 1 16 0 27 43 40
Superscript	27 88 1 20 0 27 43 50
Courier	27 107 10
Sansserif	27 107 11
Orator Caps	27 88 1 48 0 27 43 120
Orator Lower	27 88 1 60 0 27 43 150
Print Colour	27 114 0
MODIFY Hash	27 82 0 35
MODIFY Pound	27 82 3 35

Start Of Document Printer Control Codes

Reset Printer	27 107 10 27 112 1
IBM Mode	
NLQ	
Draft	
Paper Length	
Pica Pitch	
Elite Pitch	
Condensed Pitch	
Left Margin	27 108 10
Right Margin	
Line Spacing	27 65 12
Paper Out Enable	27 57
Paper Out Disable	27 56
Additional 1	
Additional 2	

Codes are altered by using the up and down cursor keys to highlight the set of codes to be altered. Press F0 followed by the codes. Press F0 between each code, and twice when the set of codes have been entered. When all sets of codes have been entered press 'S' for save, followed by 'N' for new name at then save as "PRN_roman". This process is repeated for each code file.

It will be noted that we are not using a number of 'Start of Document Control Codes'. There are two reasons for this. The first is that many of the codes which are read by the printer at the start of printing a document with the 'standard' version of *The Secretary*, such as line spacing and NLQ/draft print, are incorporated into the new embedded control codes. The second reason is that some other codes, such as paper length, become redundant with the style of paper feed with the bubble/ink jet printer. We shall, however, use 'paper length' for a different purpose in the program amendments in part 3 of this article.

When the new "PRN_" files listed above have been created and saved, the working disc should have four such files. "PRN_codes", which is the standard file supplied with *The Secretary*, will continue to be used with nine pin printers. "PRN_couri", which was described in part 1 of this article, is for printing 'typewriter' style print with the new printer. "PRN_roman" and "PRN_T_rom" are the files created in this article for producing enhanced copy. With one small exception, the two files are operated in the same way.

On loading, *The Secretary* defaults to "PRN_codes". To call up any of the other fonts use the 'M' (for MISC) menu at the foot of the screen on pressing 'EDIT'. In

the MISC menu, select 'P' (for Load PRN codes). The four "PRN_" files will be catalogued, and the appropriate file is selected at the prompt.

In use, the embedded control codes are accessed in the same way as for the standard *The Secretary* program. The line spacing for text is set for each different type size, which means that the number of lines per page will be variable.

The maximum number of lines for each type/size are as follows:-

T Roman/H Sans Serif

8pt: 96 10pt: 78 12pt: 65 14pt: 56
18pt: 44 24pt: 33 30pt: 26

Roman/Sans Serif

8pt: 78 10pt: 65 12pt: 65 14pt: 56
18pt: 44 24pt: 33 30pt: 26

In practice, where larger type sizes are used for main and subsidiary headings, less lines per page are possible. Where 12pt T Roman/H Sans Serif, or 10pt or 12pt Roman/Sans Serif are used as body type, a maximum of 60 lines per page will give both a satisfactory looking layout and a reasonable number of larger headings.

Tabulations should only be undertaken with a non-proportional font. Although indenting from the left-hand margin is possible with both proportional and non-proportional fonts, some trial and error may be required until a satisfactory print is obtained.

Whilst the *The Secretary* program will now work in a perfectly satisfactory way, some more program modifications which will be given in the final two parts of this article will make things simpler to operate, and will also give you new help screens to match the new "PRN_" files.

Until next time.

Below you will find details of the full range of SAM hardware now available.

CODE	DESCRIPTION	PRICE
COMPUTERS - Now with extended two year warranty.		
W1020	SAM <i>slide</i> - 512K - Single Drive. 512K RAM, Built-in Printer Interface, Scart cable for direct connection to monitor or scart TV.	£199.95
W1021	SAM <i>slide</i> - 512K - Dual Drive. As W1020 but with twin disc drives.	£259.95
W1025	SAM Coupé - 512K - Reconditioned but with new modern style drive fitted, V3 ROM, new keyboard, 6 months full warranty. Limited availability.	£139.95
W1026	SAM Coupé - 512K - Reconditioned with single slimline drive, V3 ROM, New keyboard, 90 day warranty. <i>Vary limited availability.</i> Ideal first step into the world of SAM.	ERING
INTERFACES (work with both SAM <i>slide</i> and SAM Coupé unless otherwise stated)		
W1101	SAM Disc Drive Upgrade. Have a second drive fitted to your SAM <i>slide</i> or a replacement/second drive for your Coupé. Fitting and return postage included in price. Ring 01452-412572 for instructions on how to send your computer.	£79.95
W1124	SAM Coupé Disc Upgrade Kit Version 2 - all you need to upgrade to a twin drive machine or to fit a replacement for your existing drive. Needs reasonable soldering skills to fit. Comes complete with all instructions & components. All you need is a standard 3 1/2" drive mechanism.	£29.95
** NEW **		
W1125	SAM Coupé Disc Upgrade Kit - as above but ready assembled. All you need is a disc drive and a screwdriver to fit.	£39.95
** NEW **		
W1102	External Parallel Printer Interface - the SPI (for Coupé).	£24.95
W1106	SAM Mouse System. Interface, Mouse and Software. Plugs into mouse port on rear of SAM. More and more software now works better if you use a mouse.	£39.95
W1107	External Disc Drive Interface and Parallel Printer Port (for Coupé).	£44.95
W1108	Internal 256K Upgrade (for older SAMs with only 256K of memory).	£34.95
W1109	TWO ^{IP} allows 2 interfaces to connect to SAM expansion port at same time.	£19.95
W1401	SAM Power Supply.	£24.95
W1402	SAM Power Supply with TV Modulator.	RING

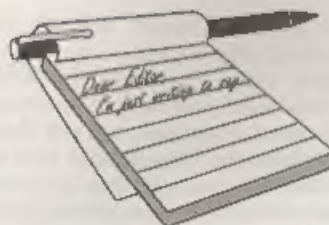
Prices valid until 1st December 1986. E.&O.E.

Ordering: Write your order clearly, state your name, full address and phone number and quote your INDUG number (if you are a member) as this helps to speed orders. **Payment:** Cheques and UK Postal Orders, should be made payable to **FORMAT PUBLICATIONS.**

Postage & Packing: Price includes UK P&P. European customers add 15% for delivery, other overseas customers please write for quote. Overseas customers can pay using the **FORMAT** foreign exchange scheme.

STOP PRESS

We would like to hear from a hardware designer with experience working with RAM to help in the development of a new version of the 1Mb RAM Pack for SAM. We would also like to have ideas from any SAM owners for new hardware projects.



YOUR LETTERS

Dear Editor,

I enjoyed reading the Genius mouse bit in Vol.9 N°11.

I wrote to you along time ago (I believe you published a reply) asking whether the Datel Mouse worked with DISCIPLE, answer, No.

In common with George Siougas I owned a PLUS D for nearly 2 years before something that Miles Kinloch said in a letter to me prompted me to try again with the PLUS D.

Like George I tried a ribbon cable, no luck. Then I bought several gold edge connectors from Radio Spares (Electromail) of Corby. I soldered one to the main edge connector then took about 60 odd single wires from the little sticking up tags on the back of the fold edge connector. I led these through the inside of the casing and back out near the back of the cassette recorder. The wires were soldered to 2nd gold edge connector. I have my +2 firmly fixed on a wooden board so I was able to fix the 2nd edge connector to the wood.

Now it is possible to put multiface 128, then, the PLUS D on the main edge connector and the mouse on the 2nd edge connector.

The only reason I'm led to believe it works is because of the combination of soldering and gold edge connectors speeding up the current flow as timing of course is critical. All the art packages, Art Studio, The Artist II and Icon Graphics work perfectly. A game 3D pin-ball froze when loaded so the system is not totally perfect.

I have a mouse machine code routine

for Melbourne draw if you send a +3 or PLUS D Disc or even a +3 3 1/2" disc, plus stamps to cover postage, I will send a copy, it is my own work so it's genuine PD. My address is 28, Elsie Street, Goole, DN14 6DU.

Yours sincerely, Bernadette Dowland.

Dear Editor,

I feel it might be as well for me to explain why, after taking **FORMAT** since January 1988, and finding it the best Spectrum magazine still available (all others having 'bitten the dust' at one time or another) and as you say yourselves 'the only Spectrum and Sam magazine that does not treat its readers like 12 year olds'. I am now asking you to transfer my subscription to **FORMAT PC.**

In case you may be thinking that I must be in some way dissatisfied with the magazine, let me assure you that the contrary is the case, and that it is simply due to the fact that I now have no less than three computers, namely a PC, a QL and a Spectrum +2 with PLUS D disc interface (or four if you include a ZX81), and I find it difficult to have them all on my desk at any one time. Or, for that matter, to find the time to read all the magazines that come through my letterbox. So something must go, and I find that I rarely read **FORMAT** beyond the editorial and the correspondence pages and 'News On 4', so that is the one I am most inclined to part with.

But hopefully **FORMAT PC** will be on much the same lines, with an editorial (though quite possibly a different one),

and correspondence pages, and the equivalent of 'News On 4', with the advantage that it will have some features and articles of relevance to the PC.

So I look forward with some eagerness to receiving the first issue of *FORMAT* PC, and as you will see from the enclosed cheque, I am 'putting my money where my mouth is' and lashing out on a 2 year subscription!

Kind regards, and please accept my best wishes for the success of your new venture.

Yours sincerely, John Ree.

Good you are staying with us John, but don't neglect your Spectrum too much will you. *Ed.*

Dear Editor,

Your magazine *FORMAT* was mentioned in the August edition of *ST FORMAT*, someone thought that it was ceasing to be published, just like the Spectrum monthly magazines. He also asked if anyone knew of any Spectrum Fanzines that were being published and the response was your publication.

I sent for your mag as now my son and daughter have a Spectrum each, (a 48K version and the +3) and with the disc you can get to turn my *STFM* into a Spectrum with some games to play, I wanted to know how they got them, as some of the older games we have not got in our collection.

The joystick we had with the +3 has ceased working and we also wanted to know if parts were still made for these machines. Hope your mag will help us out. I thought no one still backed the Spectrum as I had not heard about it for ages, but now that the emulators for Atari ST's and now for the PC's it seems popular again.

I was also wondering if you or the readers of *FORMAT*, could help me. After telephoning Datal Electronics enquiring about the Plus D system, they

told me they no longer support any products for the Spectrum.

With just joining the ranks of *INDUG* I then telephoned your hotline and asked if they knew of any other company that I could purchase the Plus D, they told me to try Datal. When I said they no longer made them they told me to write to your magazine.

So here's hoping I can still get one from somewhere.

Yours sincerely, David Barnett.

Glad you managed to track us down David, nice that *ST FORMAT* printed our address for you to stumble across. It is true that many people who contact us express surprise that we are still going strong. I think they believe that if you are not advertising then you no longer exist, whereas it is simply that there is no place left to advertise anymore.

There were still some +3 joysticks around at the last All Formats Show I went to, and another option is to rig a conversion cable to use Atari standard (again these cables do appear from time to time).

As to the Datal situation, you are the first to report it to us. Sadly our relations with Datal turned frosty soon after they took over the PLUS D from MGT, this was because they started to reproduce the PLUS D's system tape which we hold the copyright on. Many attempts to get them to pay for the right to use the programs on the tape were rebuffed and we have never seen a penny out of them. We did at one point intend to launch our own version of the PLUS D but we lost money on that project when Blue Alpha Electronics collapsed, and we have not been in a position to resurrect the idea since. If there is enough interest we may look at the project again but in the meantime you will have to look at the second-hand market. *Ed.*

Dear Editor,

I doubt whether this counts as news,

but—

You may or may not know about Discworld, a fantasy world created by Terry Pratchett (and he cannot spell disk either!) but I recently saw a book by David Langford called Discworld Quizbook which contained the following question: "Can you think of a Discworld connection (however tenuous) involving... The old Sinclair Spectrum computer?"

The answer is "The Spectrum's inbuilt system variable RAMTOP somehow became the name of Discworld's most celebrated and notorious magical mountain range".

So, at last, Uncle Clive is famous!!

Yours sincerely, Alan D.Cox.

Are you trying to intimate that Uncle (Sir) Clive was not famous before? Perish the thought, the man should be beatified at the very least. *Ed.*

Dear Editor,

In *FORMAT* Vol.9 N°9 Andy Hayward from Belgium wanted some help in compiling a list of Spectrum games, I might be able to help him out. In the final issue of *Your Sinclair* September 1993 they did a complete guide of every game they reviewed in all of the issues of the magazines from 1984 to 1993.

So if he has not got this magazine or if he wants to write to me I will only be too glad to help him out with all of the games listed in *YS*.

PS. It was another great SAM and Spectrum show, keep it up.

Yours sincerely, Norman Fryer.

Thanks Norman, nice of you to help. Yours was one of a small handful we received in a similar vein. By the way, any luck trying to get a local SAM and Spectrum user group going in your area? *Ed.*

Dear Editor,

Reading *FORMAT* I read that if I had any problems I had to write you. So

listen to my story. I was one of the first people in Holland who bought a SAM Coupé. After a while I bought a 1 Meg extension and that didn't work so I contacted Blue Alpha. After repair it still didn't work so it must have been the computer. So I decided to go to Blue Alpha while I was in the UK. I must say what a marvellous service. They made that repair in one day without any payment.

Then I bought the program *SAMPaint*. It didn't work! The program did not give an arrow pointer on the screen. I thought I got a bad disc and swapped it for another with the same result. At that time West Coast came out with the *Elite* so I bought that one for it works better with my printer. I gave my old Coupé to my grandson and was very happy that *SAMPaint* is working very well on my *Elite*. But *SAMPaint* still didn't work on my Coupé.

The question is what can I do to get it to work on my old one for my grandson would like to use that program also. I know a solution, get in the car, drive myself with computer to *FORMAT* and ask them to repair it. So it worked with Blue Alpha. But perhaps there is a cheaper way to solve the problem. Thank you for your attention.

Yours sincerely, S.M.S.Kempees.

I've had a word with Fred Publishing and the only suggestion they have relating to your problem is the ROM. To check which ROM version you have type *PRINT PEEK 15* and press enter. The ROM version (multiplied by ten) is displayed, so 30 would be version 3.0 of the ROM.

SAMPaint needs ROM 3, so if you get any number less than 30 displayed then you need to replace the ROM. Upgrade kits cost £12.95 which includes UK p&p and can be ordered through the Readers Service Page (although there is no longer room to show them each month as we

sell so few these days).

By the way, just for the record, and in case readers missed it the last time I gave the information. There is no difference between ROM versions 3.0, 3.1 and 3.5 except in the copyright message.

If you already have a version 3 ROM then I'm sorry to say we have no idea what could be the matter. *Ed.*

Dear Editor,

I would like to express my thanks to Ray Bray through the Letters page. I want to connect a Psion to my Spectrum and I wrote to Ray through the Help Page. A rapid reply was published in the June issue and he requested I send a blank disc so that he could duplicate a program for me. This he did and included copious notes on how to go about it. All I need now is a lead to connect the two machines and a two way adaptor such as the Currah Slot, anyone know of one for sale?

This kind of friendly, helpful service is worth the *FORMAT* subscription in itself.

Thanks for all the hard work you all put in.

Yours sincerely, Derek Crabtree.

And thanks to you for writing to tell us of the happy ending to your problem. *Ed.*

Dear Editor,

Firstly, in reply to Simon Turk's letter in the July issue of *FORMAT*, the game Shanghai is PD and is available in a number of PD collections, such as 'Contact 1' and can be bought from the SAM PD library at 18, Mill Lane, Glenburn Road, Skeimersdale, Lancashire, WN8 8RH.

Secondly, I can't help feeling that the news of *FORMAT* PC has been received by most SAM/Specy owners as being good and bad. Good, because there is no magazine that covers the kind of areas on the PC that *FORMAT* covers on SAM and Specy. Bad, because as a SAM

owner I can't help feeling a little worried about the future of my beloved machine. I'm sure I'm not alone in wondering how long it will be before we see a reduction in the pages of *FORMAT*, followed by the news that *FORMAT* will be bi-monthly, followed by the news that no more new SAMs will be produced etc., Please re-assure us all (preferably in big bold letters) that you will continue to support SAM as the publisher of the biggest SAM magazine and also that West Coast will continue to produce SAM and develop new peripherals.

Finally, a hint... bring out a new SAM, with 1 meg as standard, but don't call it an elite - a lot of people still refer to the SAM, as the Coupé and it seems ridiculous to have a practically identical computer with a different name - SAM Coupé 1 Mb anyone?

Yours sincerely, Gavin Smith.

I like to think that deep down I am a realist Gavin. And the reality of the situation is that either (a) Format Publications has to make more money. Or (b) I have to go out and find a job and run INDUG on a part-time basis. The only other option would be to sack Jenny, but as she does most of the work here (I have to say that cos she will be proof reading this when I finish) so sacking her is a non starter we wont even think about.

Finding a job (paying) at the ripe old age of 42 having spent the last 14 years of my life self employed would not be easy - in fact Jenny reckons I'm unemployable. So option (a) above is the only hope - we have to expand.

The idea of going down the PC route came about because we had so many letters and telephone calls from 'ex' members who had moved to the PC because of work or education needs. The common thread was that they missed *FORMAT* and wanted a PC version. This gives us an immediate market,

people who have already experienced what we have done on the Spectrum and SAM scene so they need less persuasion to subscribe. It helps us to get started without spending vast sums on advertising - money we feel is better used for other things.

Another push for us is that with two computer mags going we can twist more arms into advertising with us. This generates more revenue which helps us to keep our page count up each month. Several disc companies we have contacted in the past have been reluctant to advertise in *FORMAT* simply because they do not understand that the Spectrum and SAM market is now totally disc orientated - a misconception that we will find easier to correct once they are advertising in *FORMAT* PC.

One other argument helped sway us towards adding PC users to INDUG. Several times in the past we have organized membership drives. Each time the results have not been as good as we felt they should have been. Existing members often used the excuse "But I don't know anyone with a Spectrum or SAM". Well with the inclusion of the PC that excuse will never hold water. Every last one of you can now do your bit to help INDUG grow. Each of you know at least one person using a PC in the home, office or educational role and each and every one of those people needs to be converted into an INDUG member - and as existing members we have to look to you, our readers, to spread the word. And don't think for one moment that we are not looking to expand the Spectrum and SAM owning membership as well, reaching more computer users will allow us to pick up many more Spectrum and SAM users in the long run because we will have more people out there talking about INDUG.

With the advent of *FORMAT* PC I am confident that we can help to keep the Spectrum and SAM alive for many years.

Now to the idea of a 1meg SAM. The problem is that all the software like MasterDOS and MasterBasic would have to be re-written to deal with new memory paging. But... What would people think to a 1.5Mb machine - in other words a machine with the 1Mb expansion built in? Or how about a 1mb SAM where you have two virtual machines and can switch between one 612k machine and the other at the press of a button. Just two ideas, what do readers think? *Ed.*

The following letter was passed on to us by Frank Broughton of Revelation Software in the hope that some nice reader will be able to help Mr Turner in his quest for marital harmony.

Dear Frank,

Regarding your recent customer questionnaire about Spectrum Games 'Ready to Run' on the SAM. As I am a Spectrum owner, with a PLUS D and a 3¼" disc drive, most of my Spectrum games work fine on the SAM through Spacemaker.

There are lots of games that you have to load the next level in from tape. This is the type of game I would like to see converted to SAM disc. I was sent a copy of 'Myth' on a SAM disc and it automatically loads each level in for you.

Ever since I have owned a SAM I have been trying to find someone clever enough to get my wife's favourite Spectrum puzzle game to work on the SAM. The game is called 'Peking' and was on a cover tape from *Your Sinclair*. I have tried with an emulator and a PLUS D snap shot. The game loads in but you cannot control the on screen cursor. You need this control to be able to play the game.

I was wondering whether you might be able to get this game working on the SAM, or you know of somebody who might be able to do it. I have sent with this letter the game 'Peking' on tape and

a blank SAM disc.

I look forward to hearing from you in anticipation.

Yours sincerely, John Turner.

As I said, Frank asked me to print your letter in the hope that someone out there will have a converted version available. If we here from anyone we will send the reply on to you John. *Ed.*

Dear Editor,

In the four years that I have been a member there has been one thing that has puzzled me. As I'm returning my renewal form I thought it about time that I asked the question outright. So here it is: "Why is there so little information printed on the Spectrum 128K?" "Ok, I know you printed the excellent article on the keypad recently, but even though I have the full set of **FORMAT** there seems to be very little about things like the 128K's memory paging, the sound chip or the internal workings of the ROM."

I'm puzzled because I would have thought that most Spectrum people would have upgraded to the 128K (or +2/+3).

Yours sincerely, Gordon Davis.

Well Gordon, I hope you have not been suffering sleepless nights over this.

The truth is that the 128K arrived on the scene just as some of the best high street mags were disappearing, this meant that the expertise was slower to developed on the 128.

Still we do have a series on the 128K sound chip coming up sometime soon so that is something to look forward to. *Ed.*

Letters may be shortened or edited to fit on these pages although we try to edit as little as possible.

This is YOUR letters page so it is up to you to fill it with interesting things. Come on, get writing, any subject even remotely related to computers. Just keep things as short as you can so we can fit in as many as possible each month. Please write clearly or type your letters. Send them to the address on page 3 or fax them to us on 01452 412572.

SMALL ADS

SAM Coupé 612K, 1 disc drive, immaculate, as new. Also extra 256K Memory (unopened). Phone Paul on 01257 463328.

CAR SHARE Lift wanted from Southfields, London, to Gloucester Show on 28th October. Please contact Reg Gale on 0181 874 1465 if you can help.

FOR SALE SAM Coupé 612K with 2 disc drives, £100. Epson printer RX80 F/T+, 350. Many SAM utilities including Secretary, Personal Filing System, Campion, MasterDOS/Basic, Specmaker, Driver and others. All with original manuals. £76. Sell separately or £200 the lot. Can demo to collecting buyer. Aylesbury area. W.Holdon on 01296 612886.

WANTED Your Sinclairs (pre Feb 1992) in reasonably good condition with fully working tapes. I will pay £1 for each issue (not including postage). Also wanted: Football Manager 1, Yes Prime Minister and any other old Speccy software - originals, with original packaging only - send me your list with prices. Final want - an Acorn Electron, complete with power pack and all manuals - will pay £20 (not including postage) if in good condition. Please write to Gavin Smith, 14a Innisfayle Gardens, Belfast, BT15 4GJ. Or email me at smith-gc@ulst.ac.uk.

YOUR ADVERTS

Selling, Buying, Pen Friends, etc.
Any **PRIVATE** advert, subject to acceptance, will be printed **FREE** in the next available issue. Any software sold **MUST** be original. The publishers will not be held, in any way, responsible for the adverts in this column.
Due to shortage of space, if your advert remains unpublished after two months then please send it in again.
Trade advertisers contact the publisher for rates.



"That's the kind of man I'd like to have in my office."
I think he's enjoying his job."

SOFTWARE

SAM Coupé Software On 3 1/2" Disc

PCG's DTP PACK. The famous package including WordMaster, TypeLiner, HeadLiner. Complete on disc for SAM. R.R.P. £37.50. **SPECIAL READER'S BONUS** - Now includes 2 extra font packs worth £15.90 bringing the total pack value to £53.40.

Order Code: SCD-04 Price: £24.95

COLOUR DUMP. Screen dump software to work with Epson compatible colour printers. >>New Upgraded Version << RRP £12.95

Order Code: SCD-05 Price: £7.95

MasterDOS The advanced Disc Operating System for SAM. Includes random access files, sub-directories and file names.

Order Code: SCD-31 Price: £15.95

MasterBASIC Extended Basic for SAM, works with either MasterDOS or SAMDOS.

Order Code: SCD-32 Price: £15.95

Or Order Both MasterDOS & MasterBASIC Together and SAVE £5.

SAMSPEC SOFTWARE

SAM + Spectrum versions on one disc (5 1/4 or 3 1/2)

FONT LIBRARY. 100 screen fonts plus support software, easy to use on either computer. Special +3 disc available (Spectrum files only). RRP £8.95

Order Code: SSD-01 Price: £5.95

MONEY MANAGER. Advanced personal budgeting system for both machines. Spectrum version needs 128K+2 (not +2a or +3). RRP £15.95

Order Code: SSD-02 Price: £9.95

SPECTRUM SOFTWARE

Unless otherwise indicated these are DISCIPLER/PLUS D programs. Please state 3 1/2" or 5 1/4" disc (80 track only) on order.

ARTIST 2. The best art package ever written for the Spectrum. 48K and 128K versions on the same disc. With page-maker and utility software. Full manual. RRP £19.95

Order Code: SPD-01 Price: £12.95

UTILITY DISC #1. Six of the best and most useful disc utilities for DISCIPLER or PLUS D. Added bonus program - not to be missed. RRP £9.95

Order Code: SPD-02 Price: £6.95

PCG's DTP PACK. The famous package including WordMaster, TypeLiner, HeadLiner. R.R.P. £37.50. **SPECIAL READER'S BONUS** - Now includes 2 extra font packs worth £15.90 bringing the total pack value to £53.40.

Order Code: SPD-04 Price: £24.95

Special 3" disc version for +3
Order Code: SPD-04C Price: £29.95

FORMAT

READERS SERVICES

FORMAT BACK-ISSUES

Volumes 1, 2 and 3 are now out of print. Volumes 4,5,6,7 and volume 8 are available as complete volumes. Order by giving the Volume N° (La. V5).

Price: £14.00 per volume.

All issues, from Volume 8 N° 1 (September 1994) to the latest issue, are available separately. To order just quote the Volume and Issue N°.

Price: £1.75 each, (5 or more £1.50 per copy).

HARDWARE

DUC LEAD For use with DISCIPLER or PLUS D. This 'Dueling Up Cable' allows two disc drives to be attached without the need for opening one drive to alter its ID. Allows you to switch drives to even out wear without opening cases. RRP £16.95

Order Code: DUC-01 Price: £11.95

PRINTER LEAD. Top quality parallel printer lead. (BBC standard). 2 metres long. For use with DISCIPLER, PLUS D or SAM. RRP £10.95

Order Code: PPL-01 Price: £7.95

+3 **PRINTER LEAD**. For +3 or +2a. RRP £12.95

Order Code: PPL-02 Price: £9.95

SAM COUPÉ TECHNICAL MANUAL Version 3.

The real inside info on SAM. No SAM is complete without one. RRP £16.95

Order Code: STM-01 Price: £12.95

Music Maestro

Supplied on 3 1/2" disc for PLUS D/DISCIPLER (3" for +3) this excellent program allows you to write music either just for the fun of it or to include in your own games software where it plays under interrupts. Full manual, lots of demo tunes. The ideal way to write music on the Spectrum. R.R.P. £9.95

Order Code: SPD-05 Price: £7.95

+3 version: SPD-05C Price: £9.95

Clearly state Order Code, Product description, Quantity required and Price. Remember to add any postage and don't forget your Membership Number or we can't process your order. Payment in STERLING by Cheque (drawn on a UK bank), P.O. Euro Cheque or Cash. Make cheques payable to FORMAT. Payment **MUST** be in same envelope as order. Send to FORMAT's address on page 3. Normal dispatch is at the same time as your next issue of **FORMAT**. We will not be held liable for delays or non-delivery due to circumstances beyond our control.